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September 1997

High-Frequency Acoustic Imaging of L Lake, Savannah River Site, South Carolina

by Keith J. Sjostrom, Rodney L. Leist, Thomas S. Harmon, Jr.

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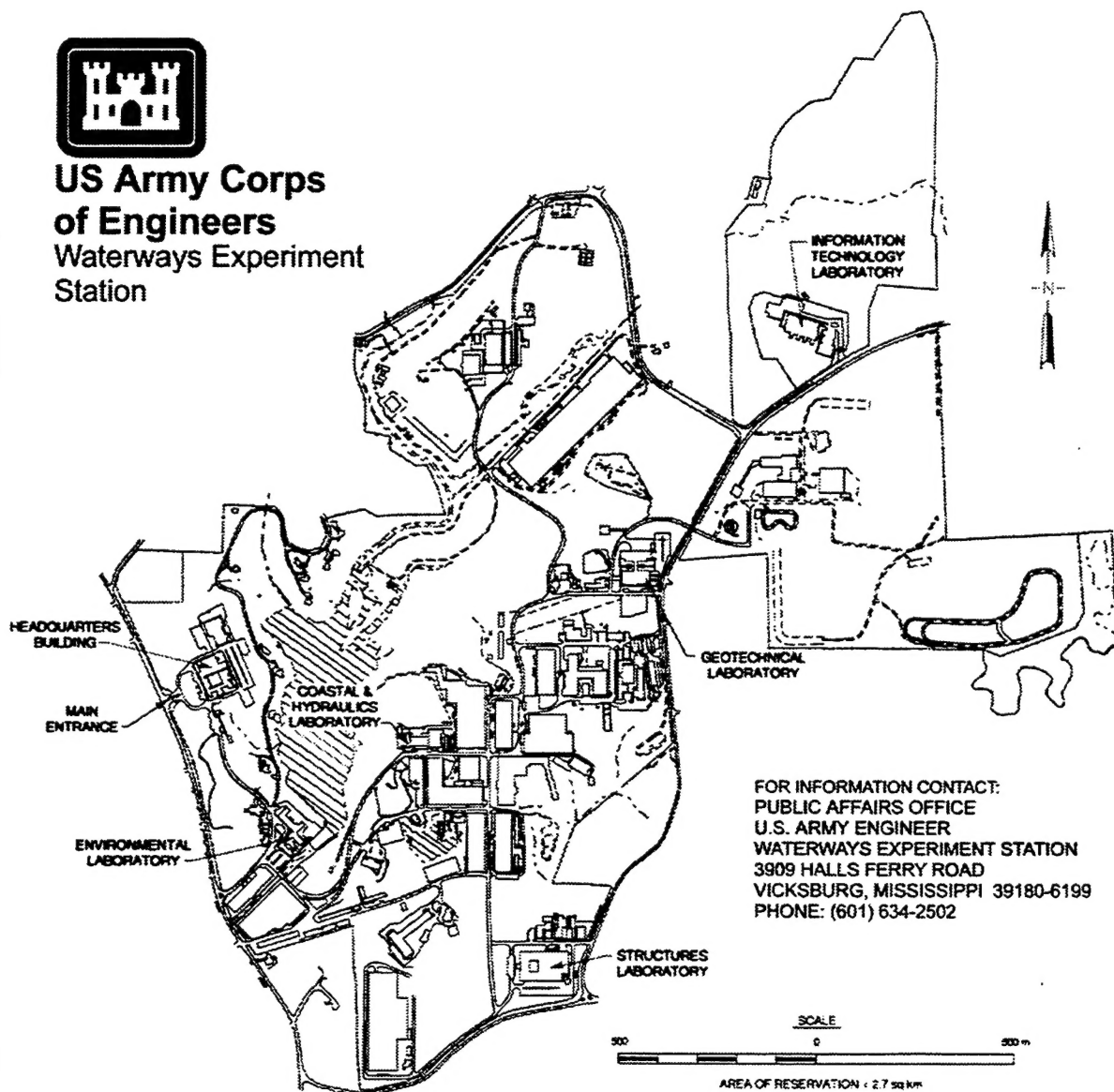
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Preface

A seismic reflection and side scan sonar investigation was conducted at L Lake, Savannah River Site (SRS), South Carolina by personnel of the Geotechnical Laboratory (GL), U.S. Army Engineer Waterways Experiment Station (WES) during the period 18-22 June 1996. The investigation was performed under sponsorship of the U.S. Army Engineer District, Charleston (CESAC) acting as a liason for Westinghouse Savannah River Comapany (WSRC), principal contractor of the Savannah River Site, and the Department of Energy (DOE). The CESAC Project Coordinators at the time of the survey were Messrs. Dave Sanders and Mickey Evans. The WSRC Project Coordinators were Mr. John Gladden and Dr. David Dunn.

The overall test program was conducted under the general supervision of Drs. W. F. Marcuson III, Director, GL and A. G. Franklin, Chief, Earthquake Engineering and Geosciences Division (EEGD). Mr. Keith J. Sjostrom was the principal investigator. This report was prepared by Messrs. Sjostrom, Rodney L. Leist, and Thomas S. Harmon, Jr. under the supervision of Mr. J. R. Curro, Jr., Chief, Engineering Geophysics Branch, EEGD, GL. Data acquisition support was provided by Mr. Carlos Latorre, Engineering Geology Branch, EEGD, GL. Data presentation and graphics support were provided by Ms. Lori M. Davis, EEGD, GL and Mr. Grady A. Holley, Jr., Applied Research Associates, Inc.

Acknowledgement is made to personnel of the SRS and CESAC for their assistance during this field study. Captain Gerald Miller of New Castle, DE is especially appreciated for piloting the WES research vessel 'Waterways Explorer' during the geophysical survey.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Bruce K. Howard, EN.

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Conversion Factors, Non-SI to SI Units of Measurement

Non-SI units of measurement used in this report can be converted to SI units as follows:

Multiply	By	To Obtain
feet	0.3048	meters
miles (U.S. statute)	1.6093	kilometers

1 Introduction

Background

The Savannah River Site (SRS) in South Carolina is a Department of Energy nuclear energy and weapons research facility operated by the Westinghouse Savannah River Company (WSRC). The SRS is located approximately 18 miles southeast of Augusta, GA, and 13 miles south of Aiken, SC, as illustrated in Figure 1. A series of nuclear reactors were constructed during the past 40 years for weapons and energy research. Two cooling reservoirs, PAR Lake and L lake, were subsequently constructed to mitigate thermal damage caused by secondary cooling water released from the reactors. Prior to construction of the reservoirs, the cooling water was released directly into the streams of the SRS (Tinney et al. 1986). L lake, located in the southern one-third of the SRS east of Highway 125 (see Figure 2), was constructed in 1985 by impounding the headwaters of Steel Creek. The lake serves as the cooling reservoir for L Reactor which is located at the northern end of the lake. L lake is approximately 7,000 m (22,960 ft) in length. That average width of L lake is 600 m (1,968 ft) with the widest sections located at distances of 1,000 and 2,700 m (3,280 and 8,856 ft) upstream of the dam. The average pool elevation is 58 m (190 ft) mean sea level (msl) with a maximum water depth of approximately 20 m (65.6 ft) near the dam.

Plans and specifications for studying the bottom and subbottom sediment structure are presently being prepared by WSRC to support an Environmental Impact Statement that will evaluate the impact of shutting down the L Reactor and dewatering L lake. During construction of the reservoir, woody vegetation was buried or burned and then buried in shallow pits and trenches located along the original channel of Steel Creek. Slightly contaminated sediments, consisting of the original stream bed sediments, were also buried within the reservoir basin. Each of the pits or burial areas are capped with sandy sediments. An aerial photograph of the reservoir prior to flooding is shown in Plate 1. The burial pits and mounds are shown as small, light-colored areas along the original stream channel. Other earthwork and construction activities are visible near the damsite.

In an effort to locate the now-submerged burial pits along the original stream channel, the U.S. Army Engineer District, Charleston (CESAC), acting as a liaison for the WSRC, requested the U.S. Army Engineer Waterways Experiment Station (WES) to perform waterborne seismic

reflection and side scan sonar surveys at L lake. Resultant information concerning the location, distribution, and depth of the existing burial pits within the reservoir will be used to assist in the preparation of plans and specifications for an Environmental Impact Statement of L lake. Additional information about the location of sediment interfaces and the aerial extent of pits or trenches were needed for project planning.

Purpose and Scope

The objective of the seismic reflection and side scan sonar survey is to determine the location, aerial extent, and depth of burial pits situated along the reservoir bottom of L lake, Savannah River Site, SC. The results will be used in the overall characterization of L lake by providing continuous profile line coverage of the bottom and subbottom sediment structure along the entire length of the project area. The results are also intended to supplement previous scientific information obtained from soil samples, aerial photography, and radiometric studies. Resultant information will be used as input for an Environmental Impact Statement of the site. Overall, the seismic reflection data will provide a better description of variations in the actual subbottom conditions and help identify differing sediment layers. The side scan sonar will aid in identifying the location of burial pits and any other features on the bottom of the reservoir. A 3.5 kilohertz (kHz), high resolution subbottom profiling system and an EG&G Model 260 side scan sonar system were used to meet the primary objectives of the investigation.

2 Technical Approach

Seismic Reflection Method

Acoustic subbottom reflections are produced when a source of acoustic energy is deployed just below the water surface and fired. The acoustic waves extend uniformly in all directions from the source as spherical wavefronts centered about the source and normal to the direction of propagation. At large distances from the source, the wave fronts may be represented by rays as shown in Figure 3. When the acoustic energy arrives at a boundary between two materials of differing density and elastic velocity, part of the energy will be reflected back towards the surface and part transmitted downward into the medium below (see Figure 3). Portions of the transmitted energy will be attenuated in the material while the wavefront propagates through to the next stratigraphic boundary.

The amplitudes of the incident, reflected, and transmitted wave energies vary with respect to the density and velocity of the materials through which the wave energy is propagating. The ratio between the amplitudes of incident and reflected wave energy at a material boundary is called the reflection coefficient (R) and defined as:

$$R = \frac{A_R}{A_I} \quad (1)$$

where A_R and A_I are the amplitudes of the reflected and incident wave energy, respectively. Reflected wave energies are detected using piezoelectric transducers which convert changes in water pressure due to the acoustic wavefronts into electrical impulses. The electrical signals are amplified, filtered, and recorded using a shallow seismic, digital data acquisition system.

The measured amplitudes of the reflected acoustic waves will vary depending on the angle of incidence the seismic wave pulse confronts the interface. If the wavelet energy encounters a reflection horizon at normal incidence (i.e. perpendicular to the interface), the reflection coefficient can also be expressed by the following equation:

$$R = \frac{(Z_{i+1} - Z_i)}{(Z_{i+1} + Z_i)} \quad (2)$$

where Z is the acoustic impedance value of the layer and ' I ' and ' $I+1$ ' identify adjacent stratigraphic layers (see Figure 3). The acoustic impedance of a sediment is defined as the product of the material density (ρ_i) and acoustic velocity (V_i) and represents the influence of the material's characteristics on reflected and transmitted wave energy. Specifically,

$$Z_i = \rho_i V_i \quad (3)$$

where ' I ' identifies the appropriate layer. Therefore, when there is a distinct impedance contrast between layers, amplitude reflections will be generated at the interface. However, at a boundary between two materials in which the seismic velocities and densities vary in such a manner that Z_i and Z_{i+1} have similar values. The amplitude of the reflections may be too small to be recorded. For a discussion more in depth, refer to Telford et al. (1976).

Despite the simplistic overview of the basic principles involved, the analysis and interpretation of seismic reflection data requires a good understanding and knowledge of all aspects of the investigation including site conditions, seismic and sonar data quality, regional geology, and available core information. Incorporating this information to produce a comprehensive picture of the subsurface is an involved task. Interfaces are interpreted by mapping the trends of high amplitude reflection values on the colorized amplitude plots. Lithology and material types are interpreted by correlating the detected interfaces with existing borehole information, bottom samples, or geologic literature. Besides the subjectivity involved in selecting reflection horizons from the amplitude records, other factors may also complicate interpretation. One factor is frequent lithologic changes in the near-surface sediments in which numerous reflection horizons exist and each interface has differing reflection coefficients (Sjostrom and Leist 1996). Surface and subsurface irregularities may also cause the incident and reflected signals to scatter away from the receiver so that reflected events may have anomalously low reflection coefficients or be completely masked. But under favorable conditions when the geologic structure is not too complicated and noise is minimized, distinct reflections can be identified and information regarding the sediment characteristics can be derived.

Side Scan Sonar Operation

Side scan sonar is an acoustic imaging device used to provide wide-area, large-scale images of the bottom of a body of water. The propagation of acoustic pulses are the same as that described previously for the seismic reflection method. The operating frequency of the side scan sonar is nearly 30 times greater than that of the seismic reflection method and, therefore,

little to no subbottom penetration is attained. However, highly detailed images of the bottom surface are achieved.

The side scan sonar system consists of an onboard recording system and control modules, an underwater sensor (typically referred to as a towfish), and a cable linking the two units (see Figure 4). During survey operations, the side scan recorder continually charges capacitors in the towfish at set levels determined as a function of the imaging range. The range may be adjusted between 25 and 600 meters. At discrete time intervals, the recorder transmits the stored power to the transducers in the towfish which in turn emits an acoustic pulse or 'ping' having a frequency of either 100 or 500 kilohertz (kHz). The acoustic signals propagate through the water over the set imaging range and reflect off differing interfaces along the bottom surface. The returning signals are received at the transducers, amplified using a time varied gain function, and recorded. Each 'ping' is digitally stored on field tapes with the corresponding positioning, time, date, towfish altitude above the bottom, and system parameters (imaging range, gain, etc.). The recorder performs further filtering, amplification, and digitizing functions to the received signal before calculating the proper position of the signals on the final graphic record. The recorder prints out and stores the resultant reflection signature one scan at a time to provide a continuous image of the bottom surface along the survey line. Images of the bottom features and site characteristics are a result of variations in the acoustic signal amplitudes. Further information concerning the side scan sonar theory of operation may be found in Fish and Carr (1990).

The printed amplitude signatures received from various bottom features can be qualitatively interpreted for the feature geometry, identification, and possible composition (Sjostrom, Leist, and Harmon 1996). The reflectivity potential of an underwater surface is a function of the side scan sonar's beam angle of incidence as it encounters that target. When the acoustic pulse ('ping') is normal to a surface, more energy returns to the towfish than when a beam strikes at a differing angle. This angle of incidence, along with the surface roughness, is the primary reason for dark and light areas on the sonar record. The various intensities of these shades assist in better record interpretation. Cultural features such as submerged roads, vegetation, and man-made debris are easily imaged during typical survey conditions. Sediments such as sandy or gravelly material typically produce darker gray patterns on the side scan record whereas lighter shades may be indicative of more silty or clayey material. However, the beam angle, towfish path, survey vessel speed, signal gain, and other physical parameters may all affect the appearance and resolution of the side scan sonar record.

Standard sonar record interpretation involves the identification of bottom features, sediments, or man-made debris and correlating the bottom feature with the positioning information along the survey track line. The precise position of any interpreted bottom features is estimated by taking into account the set imaging range and vessel orientation. Typically, an experienced investigator is needed to fully and accurately interpret the raw sonar data. New sonar post-processing techniques, developed by the U.S. Geological Survey - Woods Hole Oceanographic Institute, synchronize, with respect to

time, each 'ping' of the sonar data directly with the positioning information over the entire imaging range. The resultant bottom image is correctly geotically rectified to the specified coordinate system along the length of the survey line. Therefore, the interpreted bottom features can be assigned accurate positioning coordinates for proper post-survey mapping.

Images collected along adjacent survey lines are fitted together to produce a mosaic of the entire area investigated. The resultant mosaic illustrates the spatial orientation of all bottom features and images and each identified feature can be accurately located.

Geophysical Survey

Maps showing the location of the side scan sonar and seismic reflection survey lines in L lake are presented in Figures 5 and 6, respectively. The side scan sonar survey lines, denoted as SL01 through SL18, were performed parallel to the long axis of the reservoir as shown in Figure 5. Each line is labeled with the line designation, starting time, and ending time. Seismic reflection data were collected along only 10 of the 18 profile lines shown in Figure 6. The seismic reflection survey lines are denoted as PL## where '##' is the line number. The survey lines are nominally spaced 50 m (150 ft) apart and performed in both the upstream and downstream directions. The length of the survey lines vary depending on the lake dimensions and/or because of shallow water depths.

Survey Method

During seismic reflection data acquisition, acoustic energy was generated by a high resolution subbottom profiling system operating at a frequency of 3.5 kHz. This device is typically called a 'pinger' because of the audible noise it makes during operation. The source/receiver transducers of the high-resolution 'pinger' system are mounted on the hull of the research vessel. The source/receiver transducers were separated six feet apart and positioned approximately three feet below the water surface during the investigation. A total trace length of 700 samples were digitally acquired every 34 or 42 μ sec which corresponds to sampling rates of either 21 or 16 samples/ μ sec, respectively. These sampling rates provide an effective depth of subsurface exploration of nominally 10 to 20 ft below the bottom surface.

The side scan sonar unit was operated throughout L lake to provide images of the burial pits and mounds along the reservoir bottom surface. The towfish was positioned at a depth of three feet below the water surface and operated at a frequency of 100 kHz. The imaging range was set at 100 m in order to provide high resolution imaging of the lake bottom. The side scan sonar data, time, and positioning information were also recorded on tape for post-survey processing. Time values are also printed incrementally

along the side scan records in order to correlate the data with the positioning information.

Positioning information for each survey line was provided using Differential GPS and recorded concurrently during geophysical data acquisition. Positioning data were obtained with a Trimble 4000SE Differential Global Positioning System with differential corrections received from the U.S. Coast Guard beacon in Charleston, SC. The accuracy of the positioning data is limited to 3 to 5 meters. The WGS-84 geographic coordinates (latitude/longitude) recorded during the investigation were translated to Universal Transverse Mercator (UTM), North American Datum 1983 (NAD 83), Zone 17 coordinates (Easting/Northing) for data presentation and mapping. Precision bathymetric data are also simultaneously collected during each survey. The recorded positioning information and measured water depths are presented with respect to the side scan sonar acquisition times and seismic reflection file numbers in Appendices A and B, respectively.

3 Data Analysis and Results

Data Analysis

Analysis of the side scan sonar data involves post-processing of the sonar data, construction of the sonar mosaic, and interpretation of the processed images and raw sonar field records. Post-processing activities read the digitally acquired sonar signatures from data tapes and synchronize each 'ping' to the positioning information with respect to time. After applying the processing procedures of demultiplexing, altitude correction, and slant range correction, the final images are geodetically rectified to the UTM NAD 83 Zone 17 coordinate system. Adjacent images can be aligned together to form a mosaic of all the side scan data collected in L lake. Bottom features, trends, and sediment textures are spatially oriented and positioned as they would appear on the reservoir bottom. The acoustic image is similar to the aerial photograph shown in Plate 1. The processed sonar images are analyzed to identify the mounds, burial pits, excavation pits, areas of construction activity, and sediment textures on the reservoir bottom. Using the raw data records, identified targets are correlated to side scan sonar data acquisition times which in turn are related to the positioning coordinates. The data acquisition times (in hours/minutes/seconds), positioning information (in UTM NAD 83 Zone 17 grid coordinates), and water depths (in feet) for each side scan sonar survey line (see Figure 5) are presented in Appendix A.

Continuous subbottom profiles of the acoustic reflection amplitudes obtained using the high resolution 'pinger' system are annotated with survey information, data file numbers, and any other information available (core locations, cultural features, etc.) that will assist in interpreting the data. A set of the seismic amplitude records collected along each survey line were delivered to Westinghouse Savannah River Company project engineers in August 1996. The location of the seismic survey lines and/or a particular data file are graphically displayed on the survey track line map in Figure 6. The labeled black dots along each survey line denote the seismic data files acquired along a particular line and survey direction. Each dot represents the beginning of every third seismic data file recorded in order to give an indication of the data coverage along each survey line and assist in correlating the raw data and interpreted results. The associated label is the data file number. Appendix B lists the positioning coordinates (in UTM NAD 83 Zone 17 grid

coordinates) and water depths (in feet) for the appropriate data file number along the eight seismic reflection profiles.

Interpretation of the seismic amplitude records entails the identification of subbottom sediment interfaces or mounds caused by the burial of woody vegetation or non-construction sediment. The depths to any detected geologic interfaces or thicknesses of sediment zones are determined by measuring the travel times of the transmitted and reflected signals on the amplitude records while taking into account the source/receiver separation and acoustic velocities of the overlying sediment units. The results are correlated with the positioning coordinates in Appendix B.

The bottom features, sediment, and/or interface interpretations described herein are measured from data collected with remote sensing techniques and should not be considered absolute measurements. As with any geophysical method, there are limitations involved with both the side scan sonar and seismic reflection techniques. Some of these limiting factors are outlined below and also described in further detail in McGee et al. (1995).

Data quality. The ability of the side scan sonar or seismic reflection technique to accurately detect bottom features or subbottom layers is a function of the data quality. Data having a low signal-to-noise ratio will produce poor quality results or no results at all. The seismic reflection data quality along each survey line in L lake was good. The sonar data was also of good quality except in areas, particularly in the northern reaches of the lake, where water lillies and grasses absorbed the acoustic signals so that no bottom images were produced.

Layer detection and resolution. Unique sediment interfaces can be detected only when a distinct difference in impedance exists between materials. Gradual changes in material type, such as coarse silt to fine sand, may not result in an impedance differential large enough to produce a reflection. Steep banks or irregular surfaces of reflection horizons scatter the reflected signals away from the receiver so that interfaces may be poorly defined. In sediments having high attenuation rates such as sands or gravels, higher frequencies are dissipated at a higher rate than low frequency signals and, therefore, layer resolution is further degraded. A highly reflective bottom layer, such as compacted sand, rock, or some organic sediments, will also limit energy penetration.

Determining a depth to an interface requires measurement of the travel times of the transmitted and reflected wave while taking into account the acoustic velocities within the overlying materials. The accuracy of these results is somewhat restricted because of the discrete pulse lengths of the acoustic signals. The 'pinger' system has a well-defined acoustic pulse length and, under optimum conditions, is capable of resolving an interface to within ± 2.0 ft when operating at a frequency of 3.5 kHz.

Acoustic footprint. The term 'footprint' refers to the circular area of the reservoir bottom sensed by the acoustic device during a given pulse transmission. The 'footprint' is primarily dependent on the beam angle of the acoustic device. At an average water depth of 15 ft, the acoustic 'footprint' of the 'pinger' system is approximately 10 ft in diameter when the survey vessel is not moving. During survey conditions, the footprint increases depending on the speed of the survey vessel. This is in stark contrast to the area sampled with a drill hole or bottom sampler.

Side scan sonar data processing. Post-processing of the sonar data georeferences the individual 'pings' to the desired coordinate system across the selected imaging range. The resultant images are geodetically correct images of the bottom surface along the survey lines. However, glitches in the positioning information or sharp turns in the survey line may produce distortions in the resultant bottom images. These distortions may produce incorrect placement of the interpreted bottom features on the coordinate grid. Distortions occurred sporadically throughout the L lake project area but, because of overlap of the sonar data, there was no loss in accurate imaging of the reservoir bottom.

Side scan sonar image analysis. As mentioned in the section titled "Side Scan Sonar Operation," the beam angle of the signal, towfish path, survey vessel speed, signal gain, and other physical parameters of the equipment and river bottom all affect the appearance and resolution of the side scan sonar record. During this investigation, the resolution of bottom features (mounds, pits, roads, etc.) throughout the reservoir is good. Notable exceptions are along the shoreline and in the northern reaches of the lake where water lillies and plant life absorb the acoustic signal and effectively mask the bottom surface.

The side scan sonar and seismic reflection methods of acoustically detecting and delineating the geologic interfaces, reservoir bottom geometry, and soil type interpretations represents a geophysically-based engineering solution to the problem of remotely assessing the geometry and physical geologic characteristics of the reservoir bottom. The techniques are not capable of assessing and characterizing every geoacoustical situation and therefore the aforementioned limitations must be remembered.

Results of Investigation

Water depths measured during the geophysical surveys are analyzed and processed to create a two-dimensional (2-D) contour plot of the reservoir bottom surface. The depth contours are displayed on the L lake site map as shown in Figure 7. The contour map provides an overall depth profile of the reservoir basin and approximate depths of the individual excavation pits near the dam. The contour map is also used as an overlay of the side scan sonar mosaic to better interpret the acoustic data.

Seismic reflection survey

Interpretations of the seismic reflection data are based on variations and contrasts of the acoustic signatures along each survey line. Portions of the actual seismic records are included with the discussion to help illustrate the bottom and subbottom sediment representations being described. Areas of interest will be referenced according to seismic data file numbers which can be translated to a UTM Easting/Northing position using Appendix B.

The seismic reflection data are characterized throughout the L lake project area as having high amplitude reflection signatures from the reservoir bottom indicative of sands, gravels, stiff clays, or compacted sediment matrix. An example of a typical seismic record is presented in Figure 8. Few to no sediment interfaces are detected in the near-surface material along the right half of the figure, however, pockets or zones having higher amplitude reflections are detected. This interpretation is consistent with those of on-site personnel who, while collecting bottom sediment samples, stated that it was often difficult to collect good bottom samples because of the competent lake floor material. Along the left side of Figure 8, slightly lower bottom surface reflection values are recorded and subtle layering may be interpreted. The lower amplitude signals are representative of loosely compacted soils or more silty and clayey sediments. In other areas of the reservoir, the high amplitude bottom reflection signatures are due to gaseous, organically-rich sediments caused by decaying biological or organic material.

Sediment interfaces are detected in areas where the seismic survey lines intersect the original stream channel such as along survey line PL01 (files 0452-0485) presented in Figure 9. These interfaces likely represent bedding planes from the erosion and redeposition of sediment along the channel margin. The seismic signatures near files 0462-0464 (see Figure 9) seem to indicate a possible buried trench having a depth of approximately 8 ft. Closer inspection of the aerial photo (see Plate 1) shows mounds and possible burial pits in the vicinity but side scan sonar data positions indicate that these features are approximately 25 m (82 ft) to the left of the survey line. Therefore, these reflection signatures are likely not indicative of a burial trench but rather near-surface sediment interfaces. Other areas in which sediment interfaces are detected are along the side slopes of the reservoir upstream of the dam. These areas are where the majority of the earthwork activity took place during construction of the reservoir. A portion of the seismic record collected along survey line PL01 (files 0080-0100) is presented in Figure 10.

The principle targets of the investigation are the numerous mounds and possible burial pits dotted across the reservoir bottom as clearly visible in the aerial photograph (see Plate 1). An example of the seismic signatures collected across burial mounds is presented in Figure 11. In this figure, the data collected along survey line PL02 (files 0340-0365) illustrate the signatures of three mounds typical of those located throughout the reservoir basin. Each mound is 5 to 7 ft in height and approximately 15 to 20 ft in width. The seismic reflection data also reveal that there are likely no burial trenches beneath the mounds. However, in some instances, there are slight depressions underneath the mounds as shown in Figure 11 at file 0361.

Additional mounds, although much better imaged with the side scan sonar data (see next section), are located approximately 800 m upstream and to the right of the dam. The mounds are interpreted as piles of soil located in and around the excavation pits created during construction of the dam. A good example of the seismic signatures defining the piles of soil are noted along survey line PL14 (files 0010-0035) as displayed in Figure 12. A large mound is detected in one of the nearby excavation pits as shown in Figure 13. This mound, detected along survey line PL13, is approximately 12 ft high and 30 ft wide. Interpretation of the seismic data suggests that this material likely overlies a burial pit or trench that may be up to 10 ft deep.

Side scan sonar survey

The side scan sonar system was used to provide images of the reservoir bottom along the length of the project area. Each record is post-processed and redisplayed such that the sonar data are geodetically rectified to the UTM NAD 83 Zone 17 coordinate system. The raw and processed images are analyzed and interpreted to investigate the location and characteristics of the mounds or pits, other areas of burial or earthwork activity, and general reservoir bottom features. Areas of note are referenced to the survey coordinates so that each feature in the image may be accurately located on the reservoir bottom. The processed sonar images are further compiled to create a mosaic image of the entire reservoir bottom. During the discussion of the sonar results, the acoustic images of bottom features are presented from both the processed and raw data records.

A mosaic image of the reservoir bottom constructed from the post-processed side scan sonar data is presented in Plate 2. The mosaic image and the aerial photograph shown in Plate 1 are similar, as one would expect, so that mounds, pits, roads, and other features are directly correlated between the two illustrations. Features such as mounds, pits, roads, and other reservoir construction features are detected in the sonar image as well as non-construction images of the original stream channel and the old Road A-14 (Meyers Mill Road) river crossing. All of these features are discussed in further detail in the following paragraphs.

The mounds within the reservoir basin, appearing as small humps in Plate 2, were created to bury vegetative material or stream sediments possibly contaminated with low-level radioactive material. Mound composition and construction is thought to be of two types: (a) vegetative material or streambed sediments placed in pits and buried or (b) vegetative material burned and the ashes buried. As was interpreted during the seismic reflection investigation, there are likely, although with some exceptions, no pits beneath the detected mounds. Credence is lent to this interpretation by viewing the excellent example of mounds imaged in Figures 14 and 15. Referring to the sonar images of the mounds, it is clearly shown that the mounds were constructed by pushing nearby material into a heap to cover either the vegetative material, its ashes, or stream sediments. The height of the mounds are approximately 5 to 7 ft as determined from the seismic reflection data. Blade marks created by bulldozers or front-end loaders and tire ruts are also visible

on the sonar record. Other good examples of mounds imaged at various locations within the reservoir are presented in Figures 16 through 22. The approximate location of each of these images are outlined in Figure 23 to help orient the reader. Each of the imaged mounds are interpreted as being built in the same manner as those shown in Figure 17. Other bottom features visible in the figures include roads used during construction of the reservoir (see Figures 17 and 18), the original stream channel (see Figures 20 and 21), topographic ridges, and tire ruts likely created during the clearing of vegetation within the basin. The mound detected at the center of Figure 22 does not have the blade marks indicative of soil pushed into a heap. However, whether soil was brought in from elsewhere or a pit exists beneath the mound is not known.

Sonar images acquired over areas of the reservoir bottom where the majority of the construction activity took place are presented in Figures 24 through 27. Figures 24 through 26 image the area upstream and to the east of the dam (see Figure 23) where two large excavation pits were constructed as shown in Plate 1. Figure 27 illustrates a sonar image collected directly upstream of the dam as outlined in Figure 23. Piles of soil are noted in each of the four figures and are arranged as if a dump truck or front-end loader deposited the material. The geophysical data is unable to determine the nature of the material and, therefore, the material may be either good quality construction soil, soils of little construction value, or slightly contaminated streambed sediments. Figures 24 and 25 illustrate at least five areas of soil piles near the two largest excavation pits. Excessive vessel maneuvering during data acquisition creates distortion, near the top of each figure, in the processed sonar image which in turn lessens image clarity. The piles of soil that extend into the excavation pit in Figure 24 may be the material that covers the burial trench detected with the seismic reflection data (see Figure 13). The soil piles interpreted in Figure 27 are located along a large graded area. Along with the images of the piles of soil, each of the figures also illustrate numerous construction roads.

Sonar images of other construction activities are also detected in the vicinity of the dam as presented in Figures 26 and 27. Directly upstream of the dam and to the east of the original stream channel, a graded area is detected as shown in Figure 26. Blade marks caused by bulldozers or graders are clearly visible and indicate areas of either earth removal or soil placement procedures. Another area of earthmoving activity is located west of the original stream channel as shown in Figure 27. Although not all areas are presented, most of the reservoir bottom in the vicinity of the dam was graded during the construction phase of the lake.

The original stream channel was not disturbed during the construction of the L lake reservoir except in the immediate vicinity of the dam. Images of the channel characteristics and meanders are detected along most of the length of the reservoir. Three images of the original stream channel are presented in Figures 28 through 30. The images in Figure 28 were collected at the old river crossing of Road A-14 (Meyers Mill Road). Features of note include the stream crossing or bridge, the old road grade, several mounds, the channel geometry, and tire ruts created during vegetation removal.

Interpretation of the sonar record suggests that some of the vegetation along the channel was not removed prior to reservoir filling. The images shown in Figures 29 and 30 provide additional views of the original stream channel and surrounding features. Seismic reflection data collected over the original stream channel imaged in the lower portion of Figure 30 was presented earlier in Figure 9.

4 Project Summary

A high-resolution, seismic reflection and side scan sonar survey was performed in L lake, Savannah River Site, South Carolina. The objective of the investigation is to determine the location, aerial extent, and depth of burial pits situated along the reservoir bottom. The results will be used in the overall characterization of L lake bottom surface and is also intended to supplement previous scientific information obtained from soil samples, aerial photography, and radiometric studies. Resultant information will be used as input for an Environmental Impact Statement of the site. A 3.5 kHz, high resolution subbottom profiling system and an EG&G Model 260 side scan sonar system were used to acquire the acoustic data. Water depths recorded during the geophysical investigation were analyzed to produce a 2-D contour plot of the reservoir bottom geometry.

Seismic reflection signatures recorded throughout the L lake reservoir basin indicate that, over large areas of the river bottom, no distinct sediment interfaces are recorded. The lack of detected reflection horizons may be due to the following factors: no sediment layers present, sediment facies having similar acoustic impedances and thereby producing no reflections, or layering is too thin to be resolved. Amplitude values of the reflection data are relatively high which are indicative of competent sediments such as compacted soils consisting of clay, silt, or sand or coarse sand and gravels. Variability in the acoustic nature of the bottom sediments is also indicative of zones or pockets of sediment material having differing impedance values. Several areas of uncharacteristically high amplitude signals were recorded in some areas of the lake. Signals of this amplitude are typically indicative of bottom materials consisting of cemented sediments, rock, or organically-rich sediments. Sediment interfaces within the near-surface material are typically located along the original stream channel and in areas of construction activity.

The side scan sonar was used to provide an image of the reservoir bottom along the length of the project area. Each record was analyzed and interpreted to investigate the location and characteristics of the mounds or pits, other burial or earthwork activity, and general reservoir bottom features. The side scan sonar data are further processed to create a mosaic image of the entire reservoir bottom which is geodetically rectified to the UTM NAD 83 Zone 17 coordinate system. The mosaic image correlates very well with an aerial photograph of the site prior to reservoir filling.

The mounds within the reservoir basin were created to bury vegetative material or sediment thought to be contaminated with low-level radioactive material. Interpretation of the side scan sonar data determined that the mounds were constructed by pushing nearby material into a heap to cover either the vegetative material, its ashes, or contaminated sediments. The height of the mounds are approximately 5 to 7 ft as determined from the seismic reflection data. The length and width of the mounds typically varies from 15 to 20 ft. The mounds, as interpreted from the seismic data, do not cover any burial trenches or pits. However, small depressions are detected underneath some of the mounded material. Blade marks from earth moving equipment and tire ruts are visible on the sonar records in the vicinity of most mounds. A number of excellent examples illustrating this work are presented in the text.

Piles of soil are also located upstream of the dam in areas where the majority of the construction activity took place. The piles are located near excavation pits and arranged as if a dump truck or front-end loader deposited the material. The piles of material may be either good quality construction soil, soils of little construction value, or slightly contaminated streambed sediments. Images of soil piles at the bottom or side of two excavation pits located upstream and to the right of the dam were detected. In one of the pits, the soil piles are interpreted as covering a burial trench or pit. The trench or pit is estimated to be approximately 30 ft wide and covered by over 10 ft of soil. In the other excavation area it is unknown whether this activity was the burial of a trench, contaminated sediments, or vegetative material. Sonar images of other past construction activity were also detected in the vicinity of the dam. Graded areas and areas of earth removal were identified directly upstream of the dam. Blade marks created by bulldozers, graders, or other earth moving equipment are easily visible in the sonar records.

Other bottom features detected with the side scan sonar include construction roads throughout the reservoir basin, the original stream channel, topographic ridges, old river crossings, and tire ruts likely created during the clearing of vegetation within the basin. Images of vegetation left along the margin of the original stream channel are also visible.

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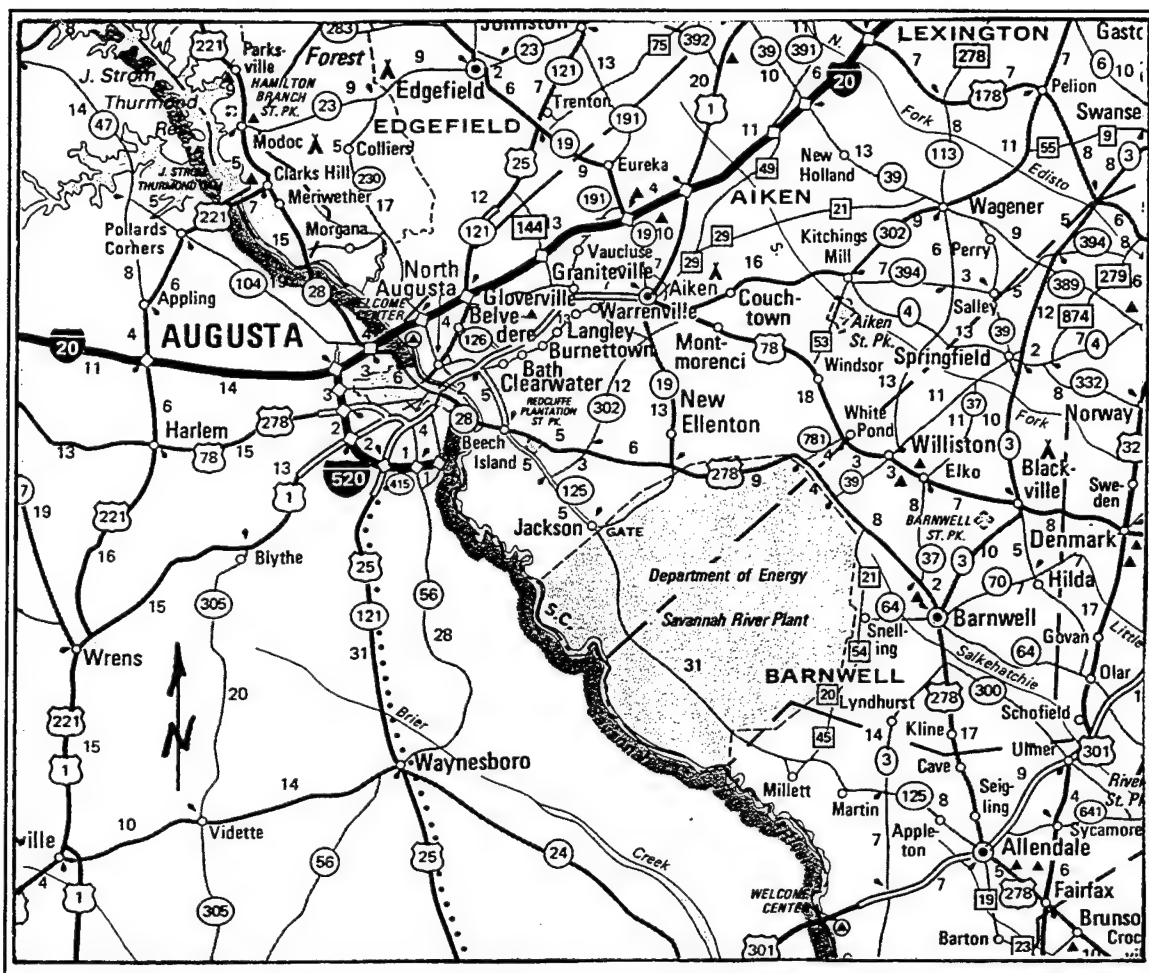


Figure 1. Location of Savannah River site, South Carolina

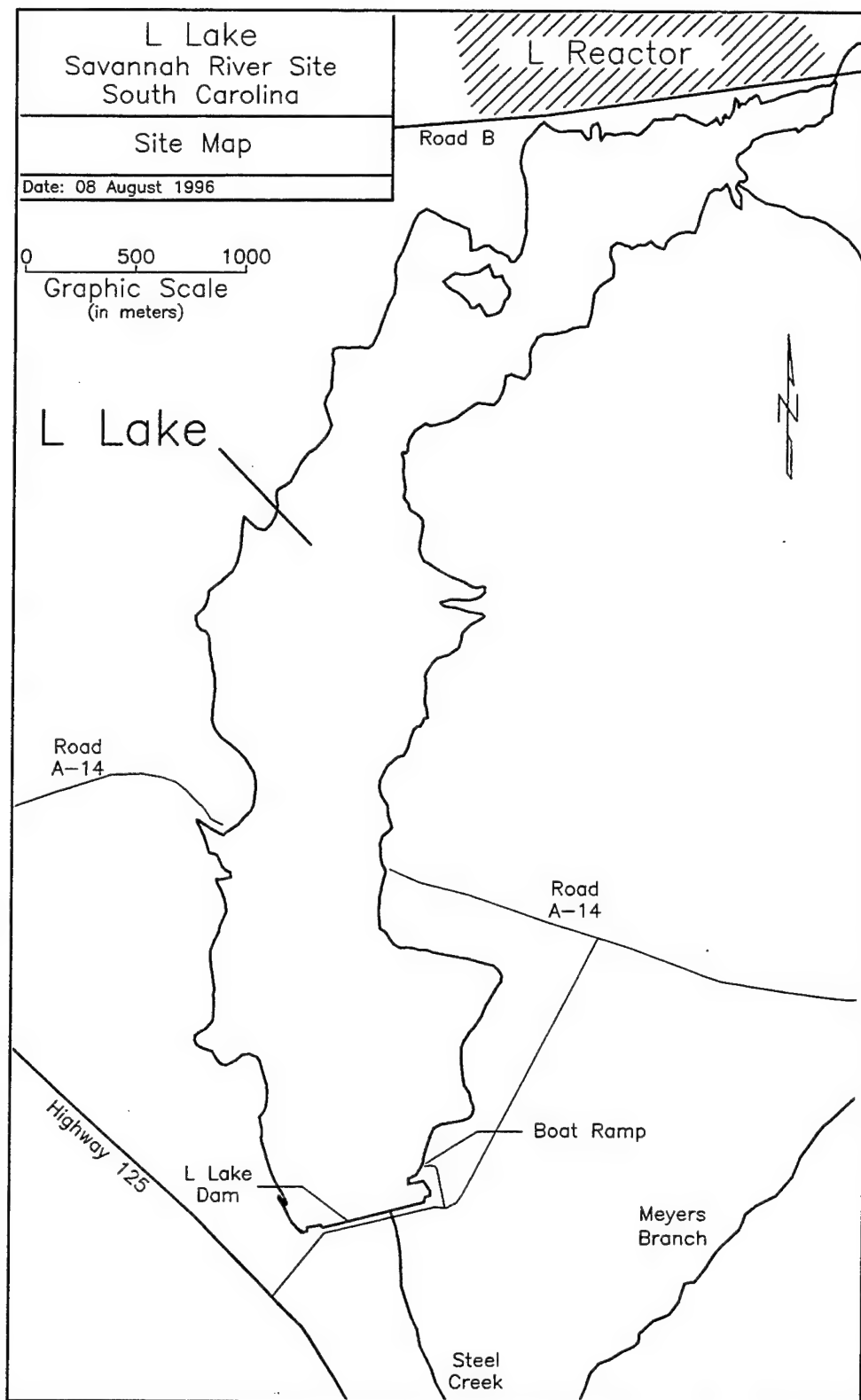


Figure 2. Site map of L Lake, Savannah River site

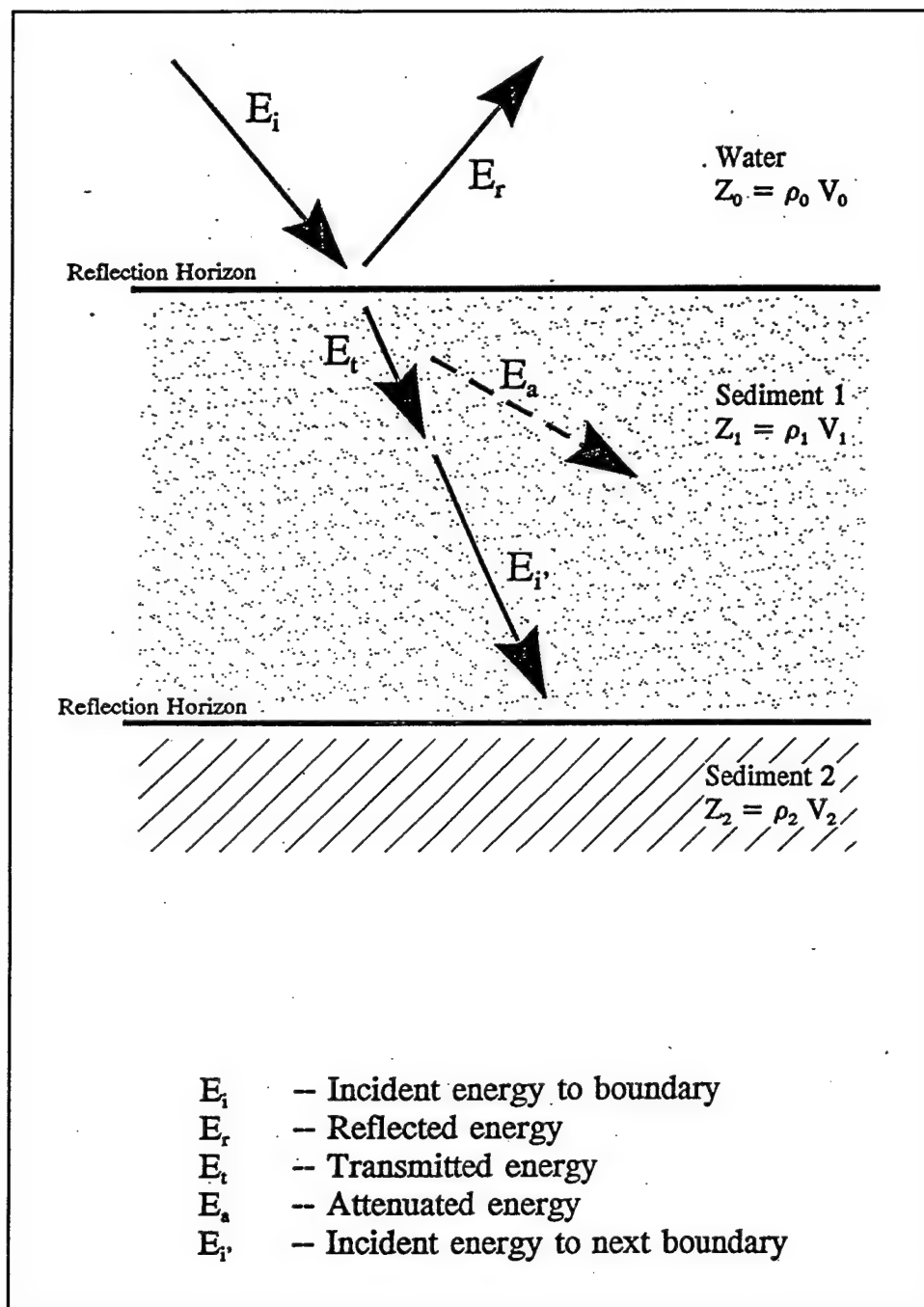


Figure 3. Ray diagram of seismic reflection technique

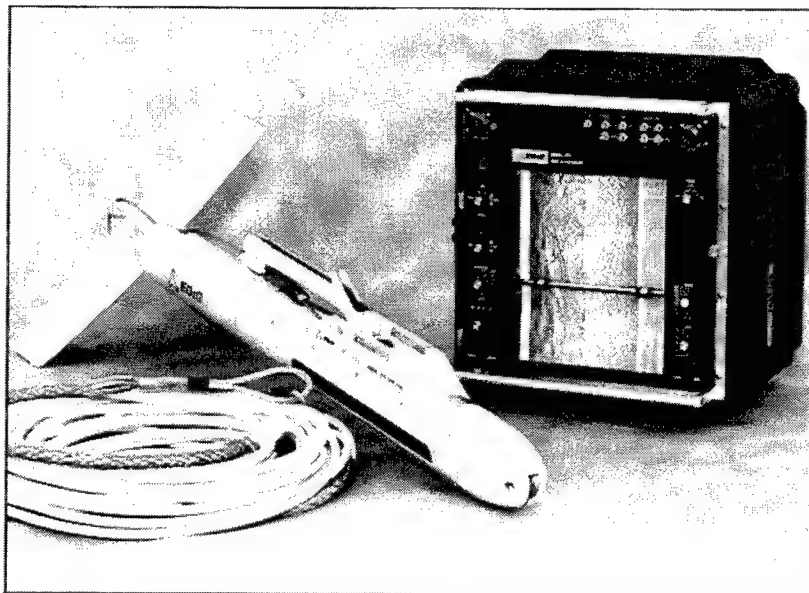


Figure 4. Illustration of the side scan sonar equipment

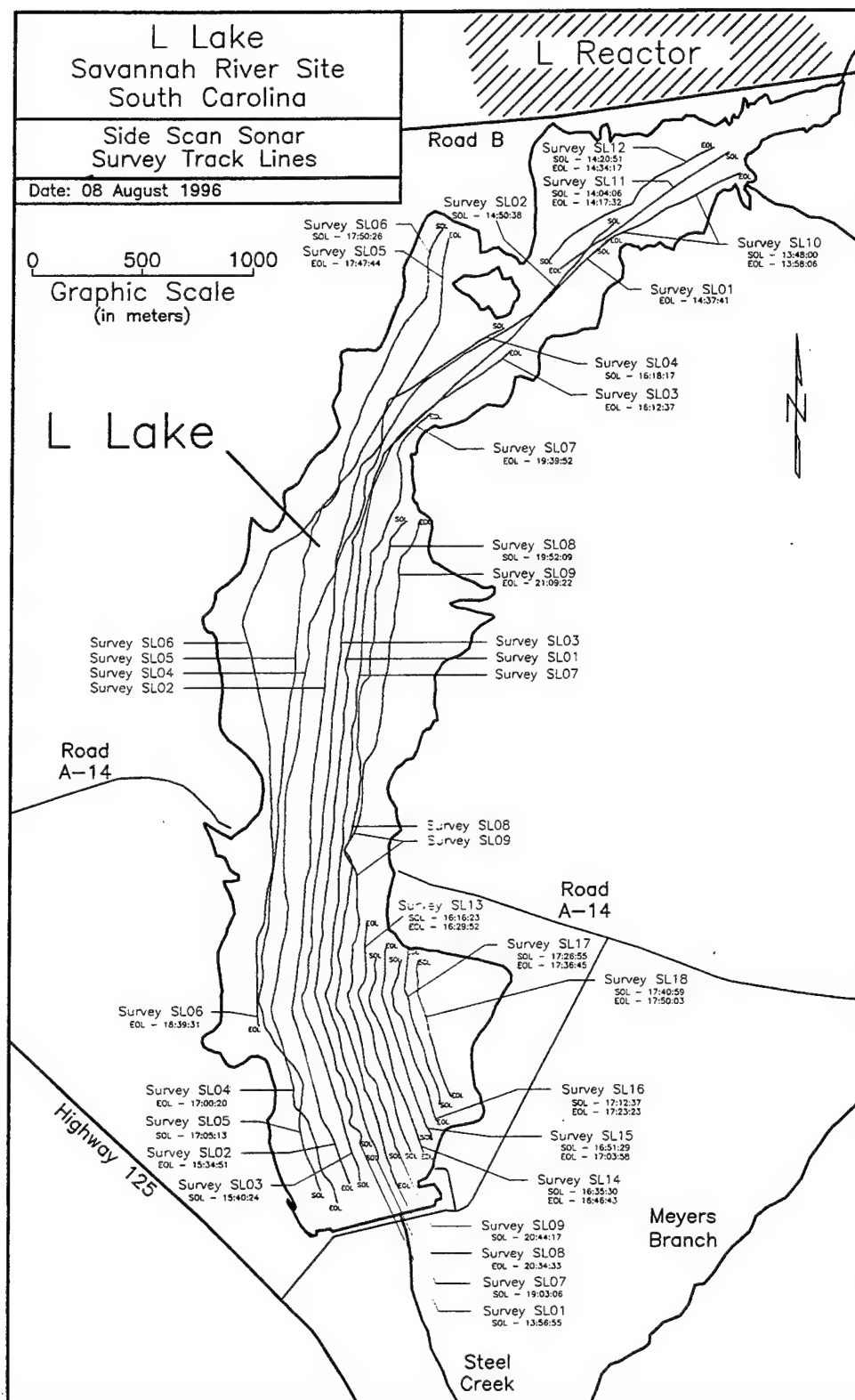


Figure 5. Side scan sonar survey track lines

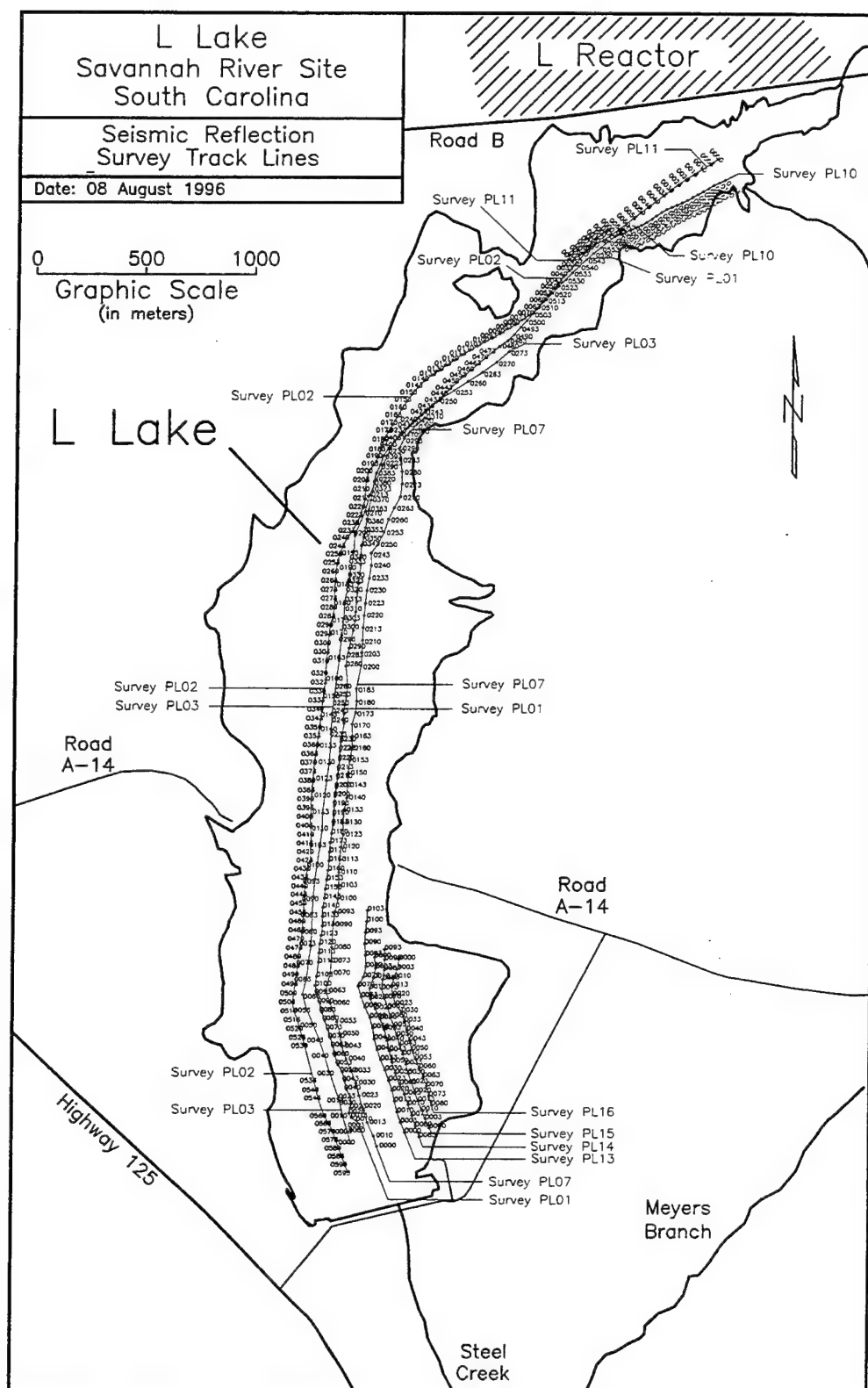


Figure 6. Seismic reflection survey track lines

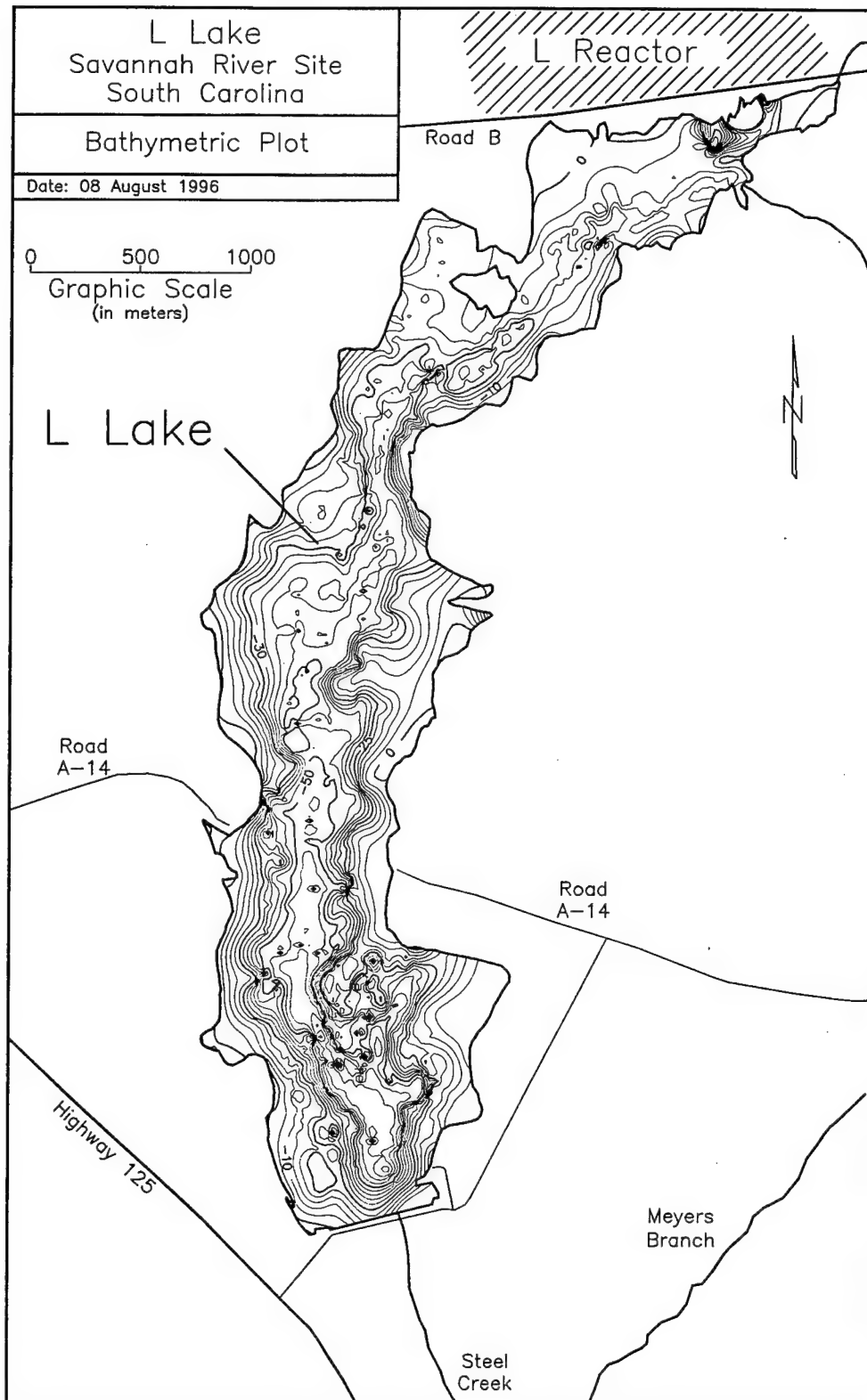


Figure 7. Contour plot of water depths

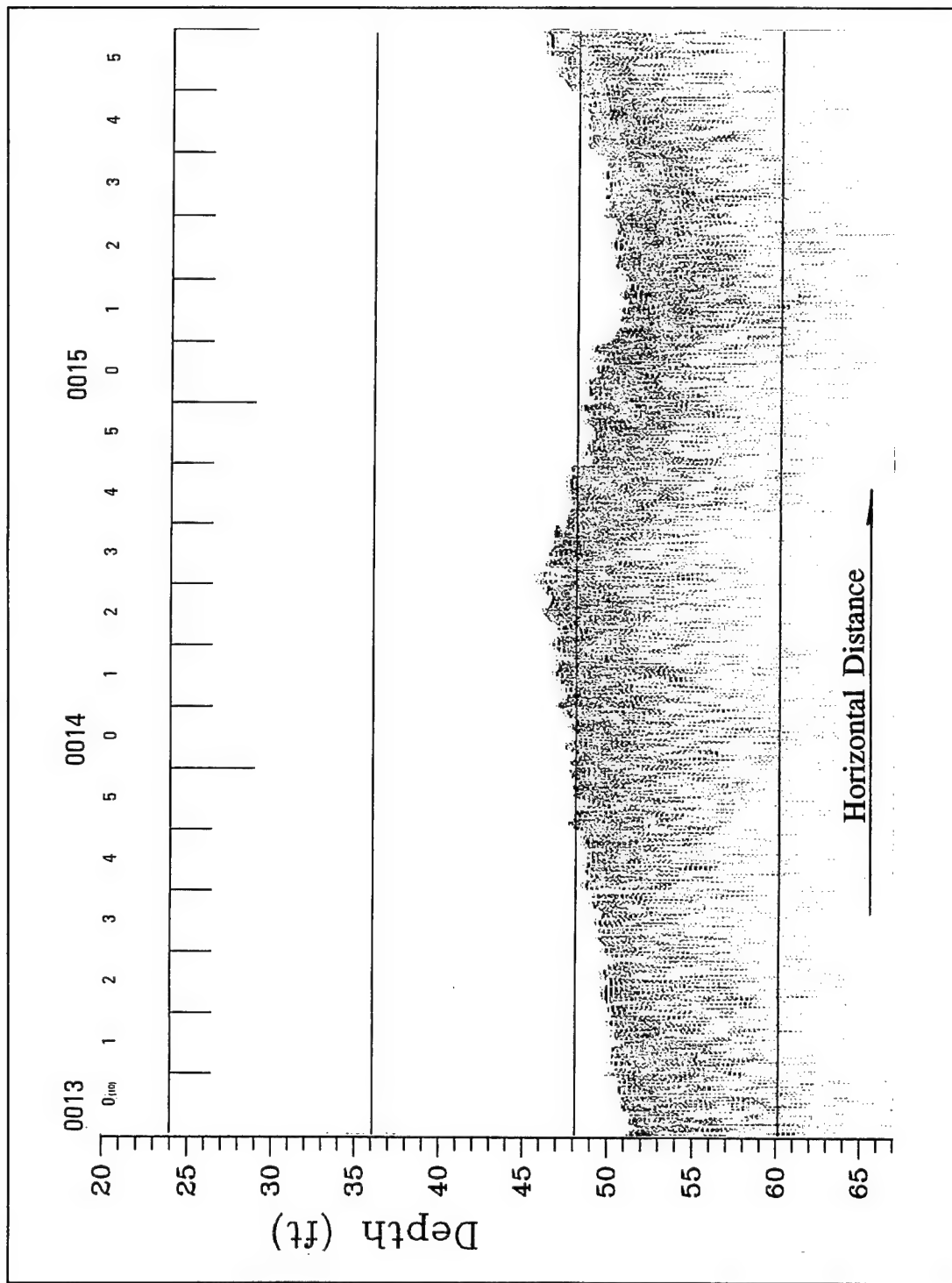


Figure 8. Typical seismic reflection signatures in L Lake as illustrated along survey line PL01 (files 0130-0155)

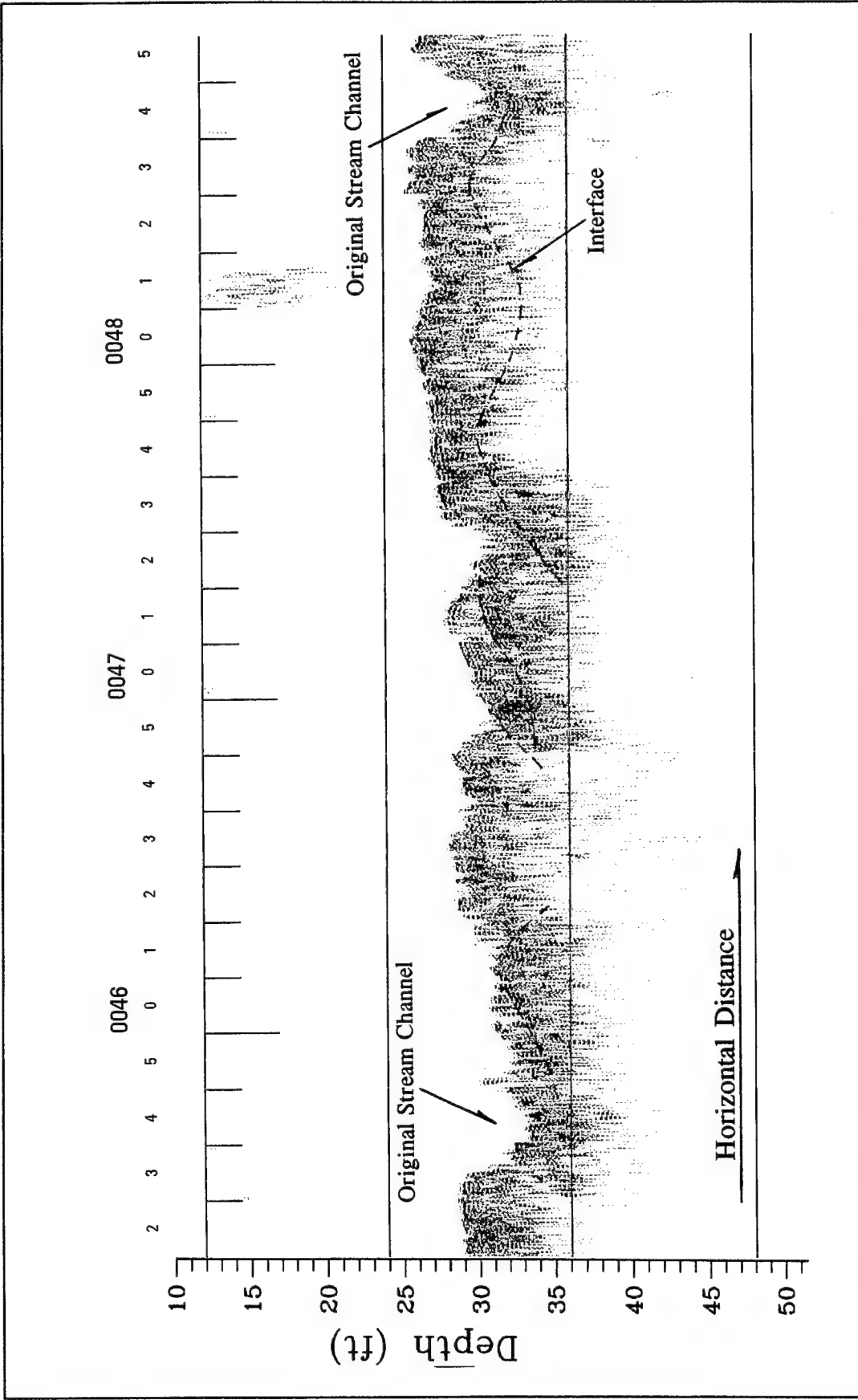


Figure 9. Seismic reflection data collected over an area of the original stream channel along survey line PL01 (files 0452-0485)

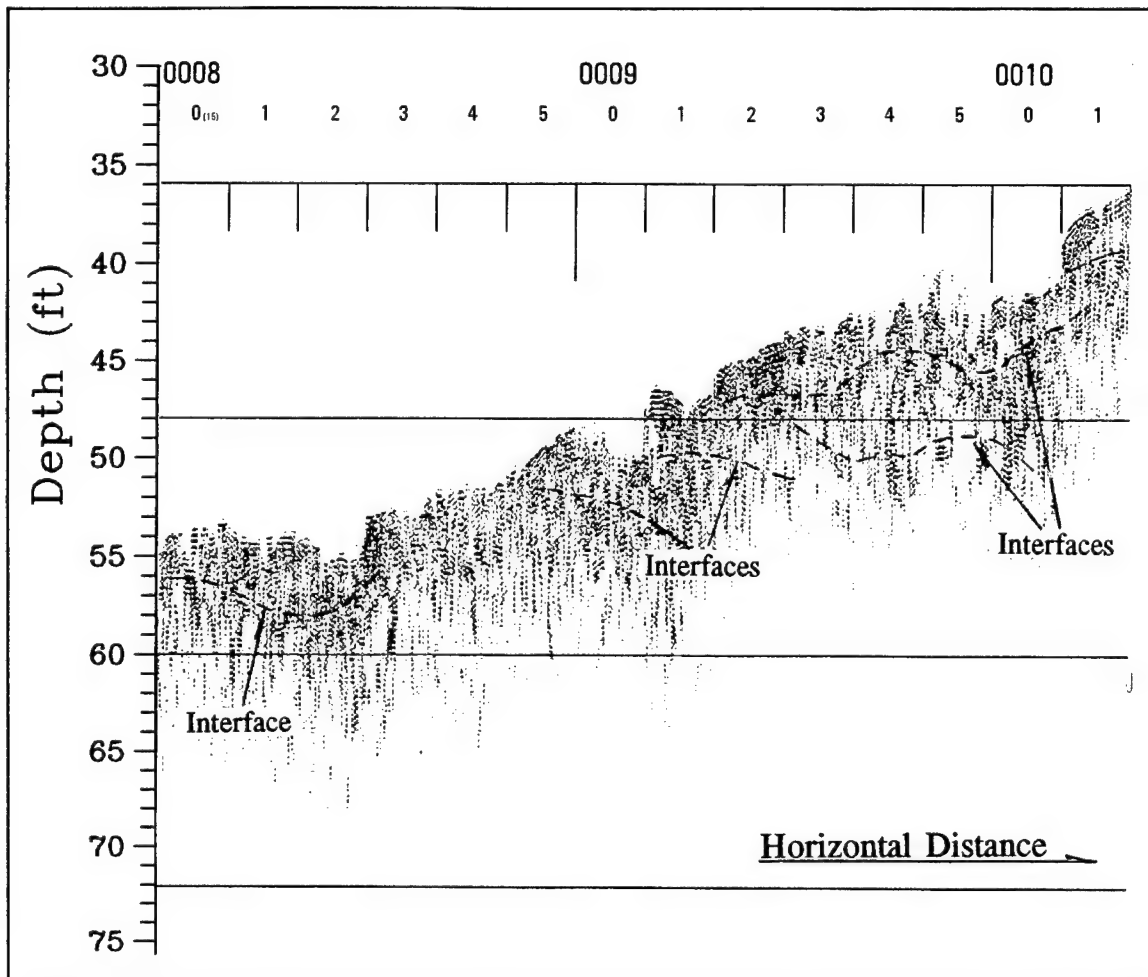


Figure 10. Seismic reflection data collected along survey line PL01 (files 0080-0101) indicating near-surface sediment interfaces

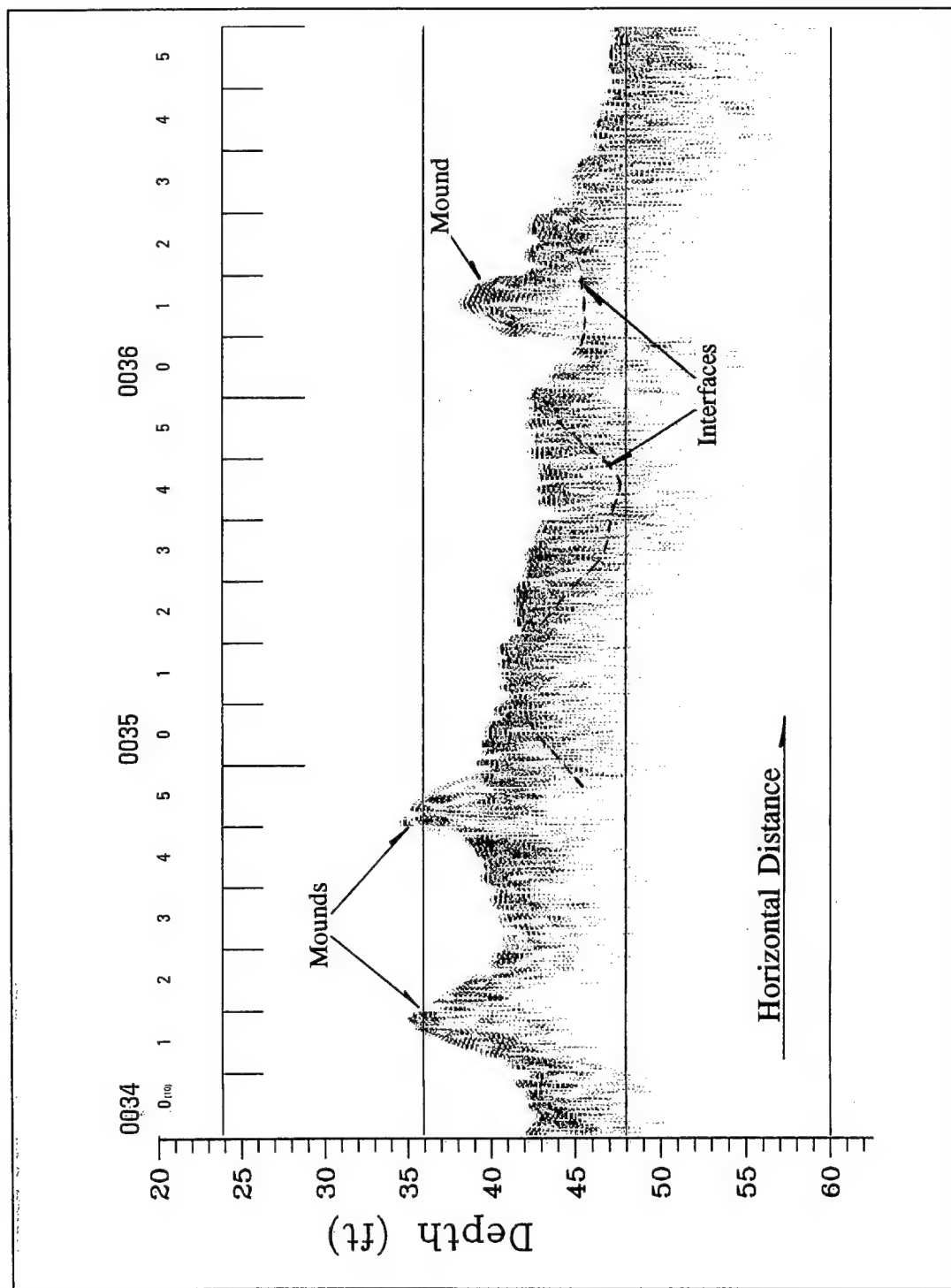


Figure 11. Seismic reflection signatures of three mounds collected along survey line PL02 (files 0340-0365)

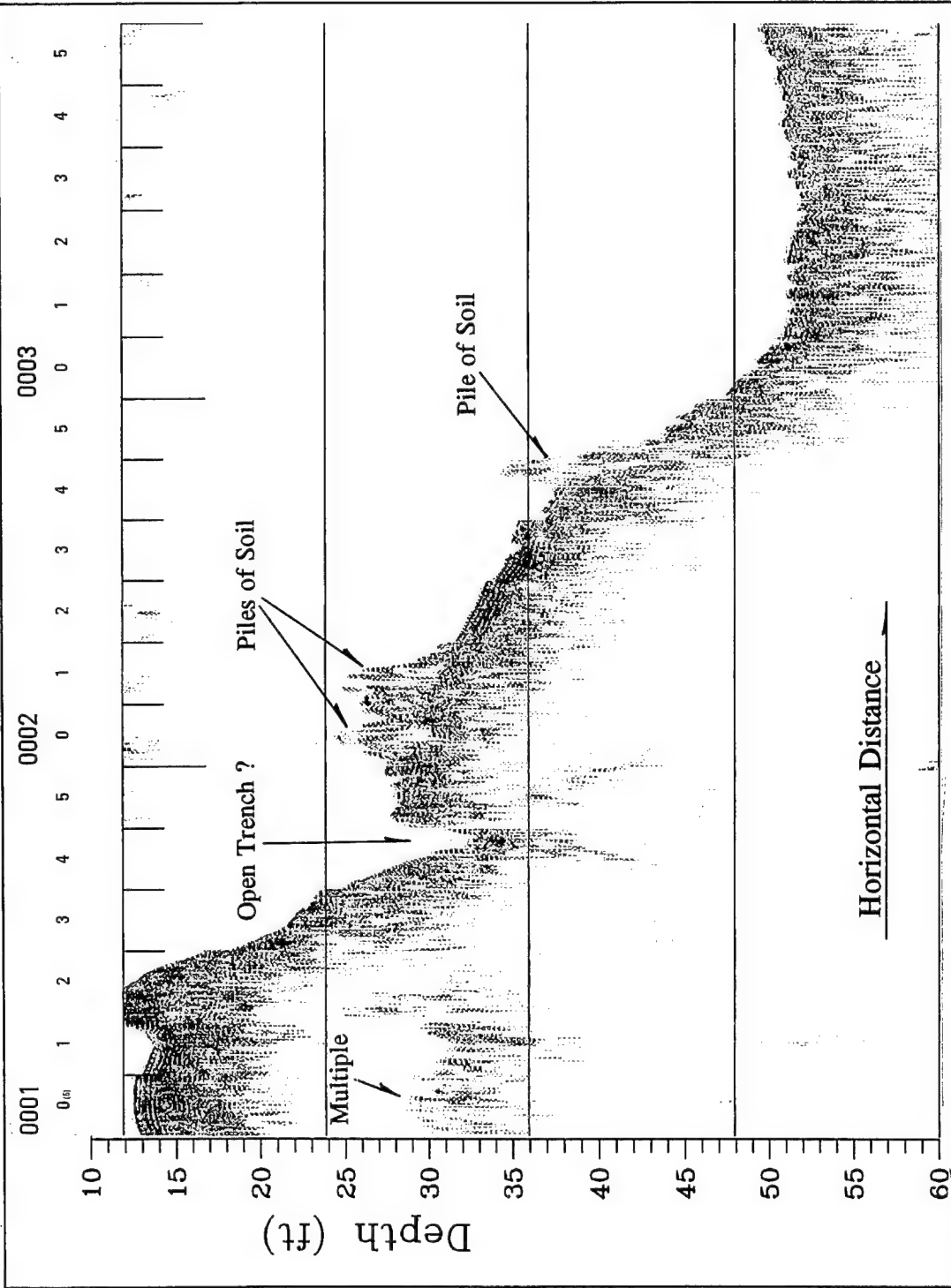


Figure 12. Seismic reflection data collected along survey line PL14 indicating a possible trench and three piles of soil

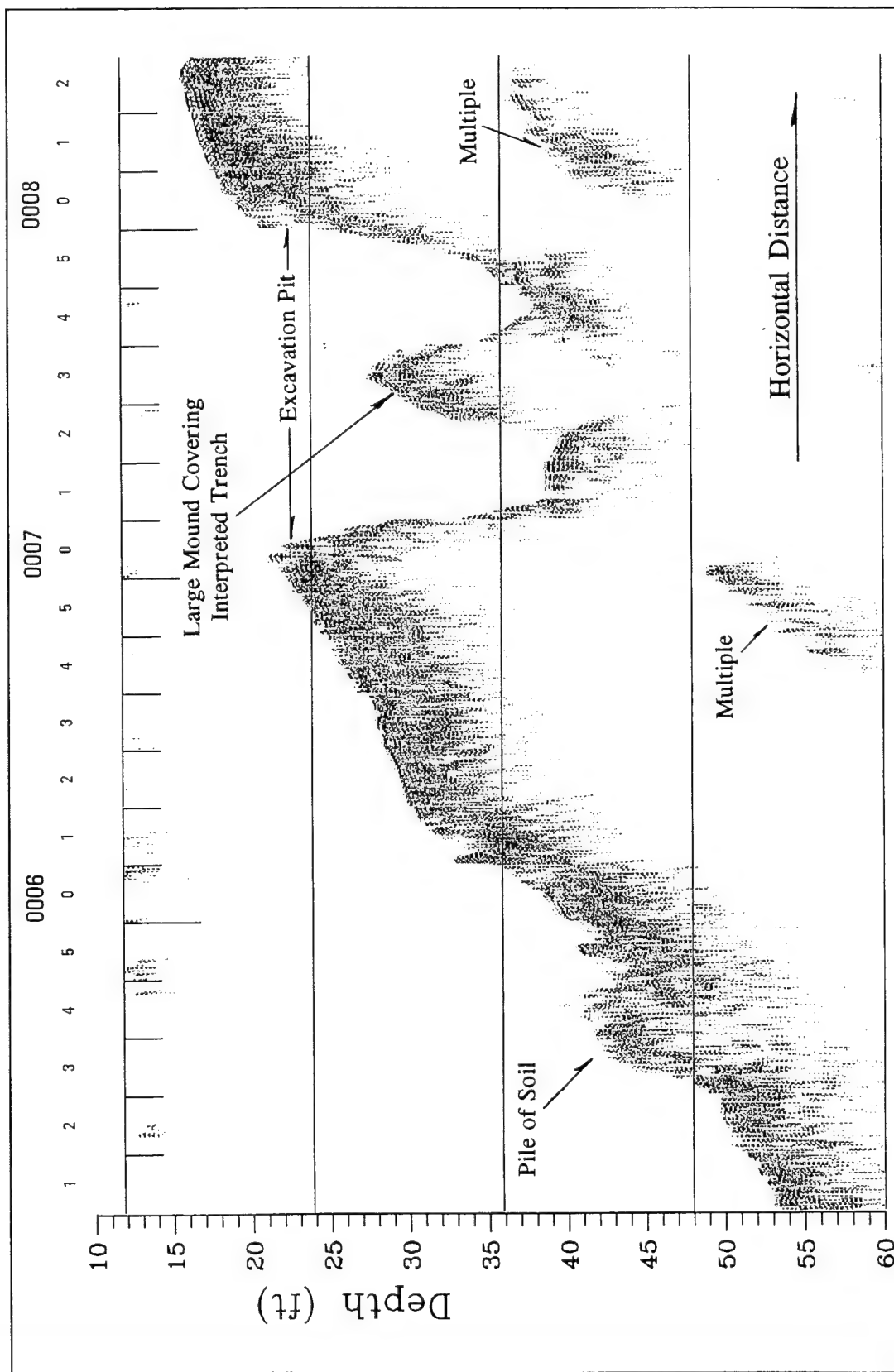


Figure 13. Seismic data long survey line PL13 illustrating a possible buried trench in an excavation pit and a pile of soil

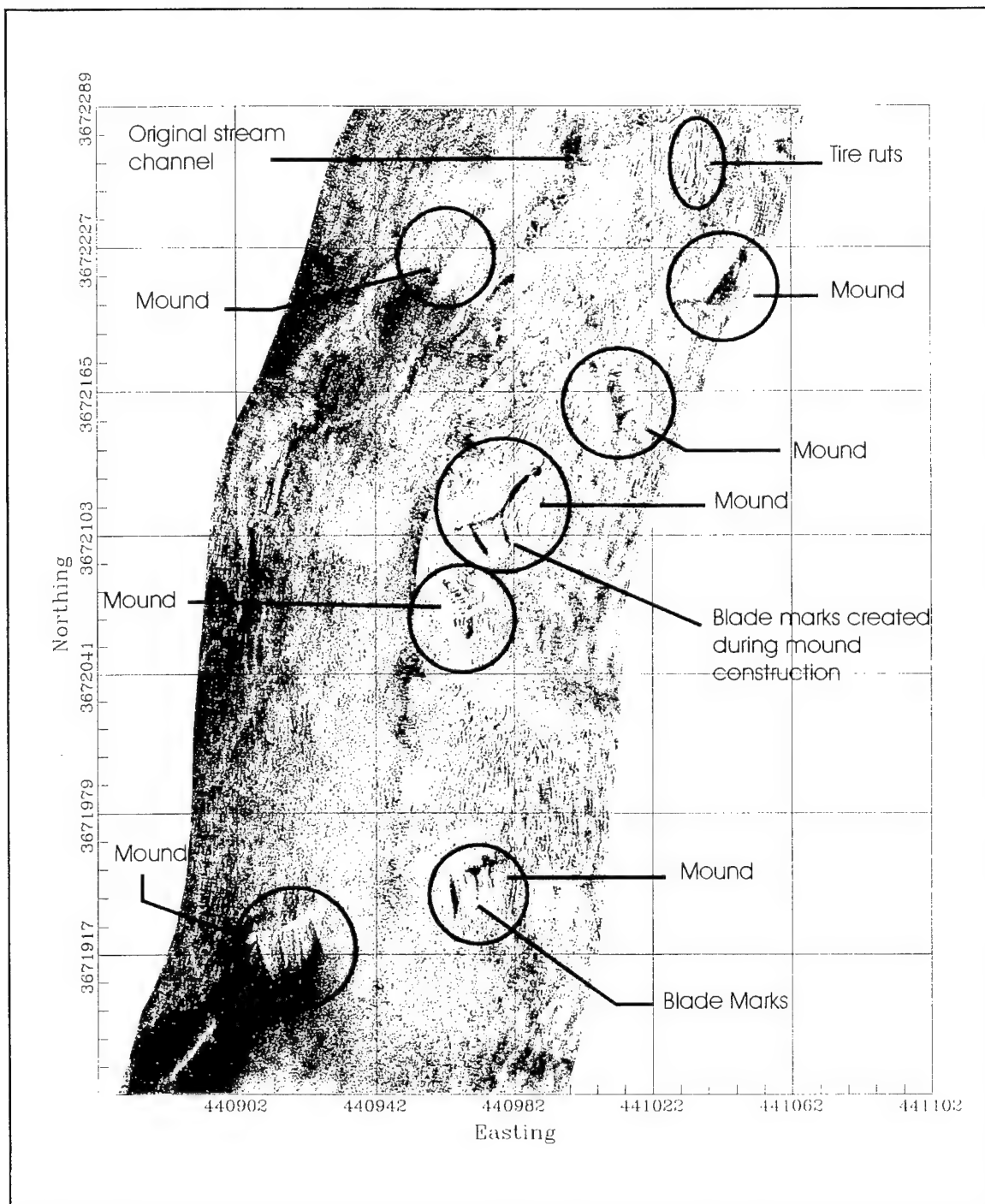


Figure 14. Sonar images of seven mounds along survey line SL08. Also note the blade marks created during mound construction

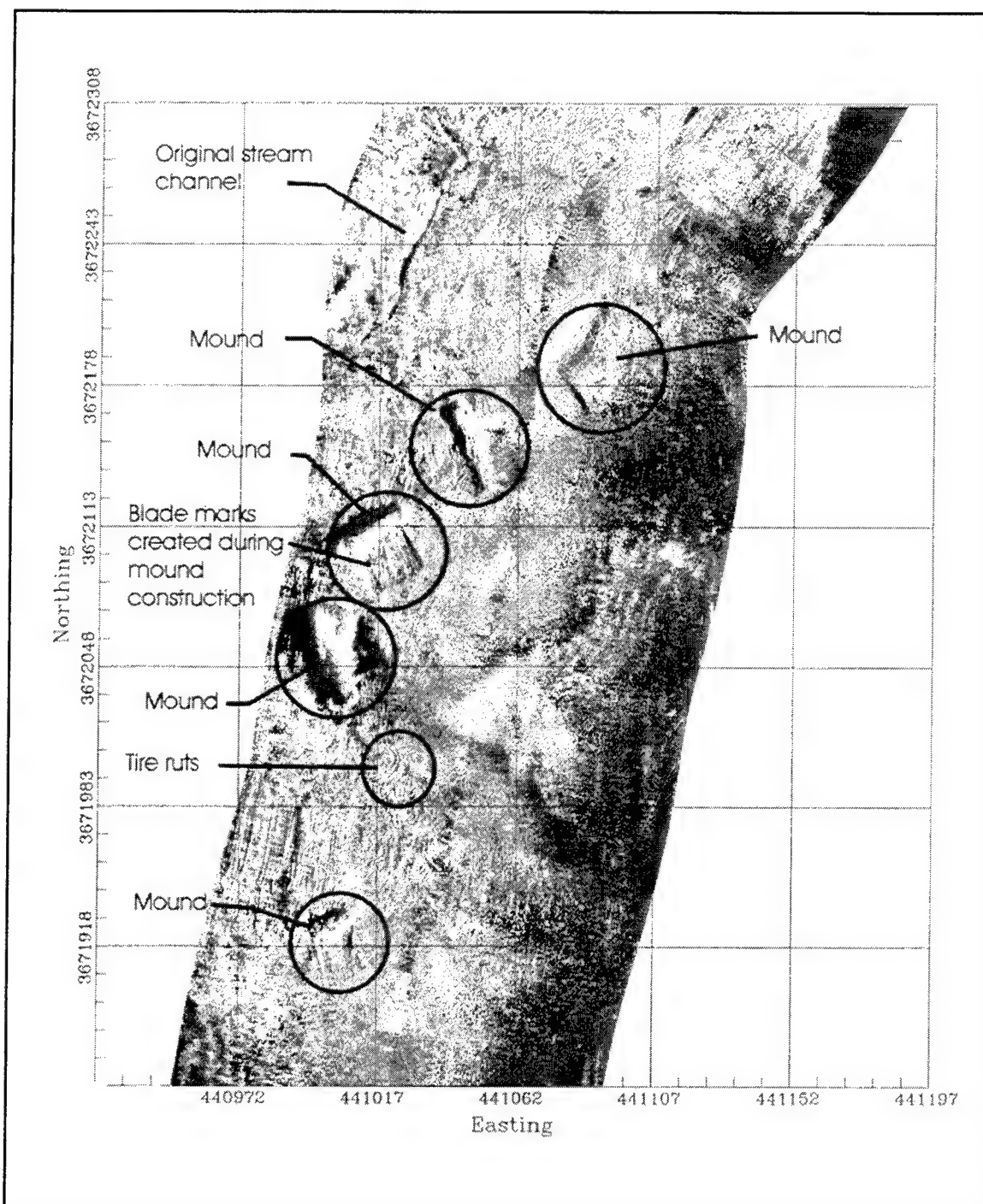


Figure 15. Sonar images of five mounds along survey line SL09. Tire ruts are also interpreted near the mounds

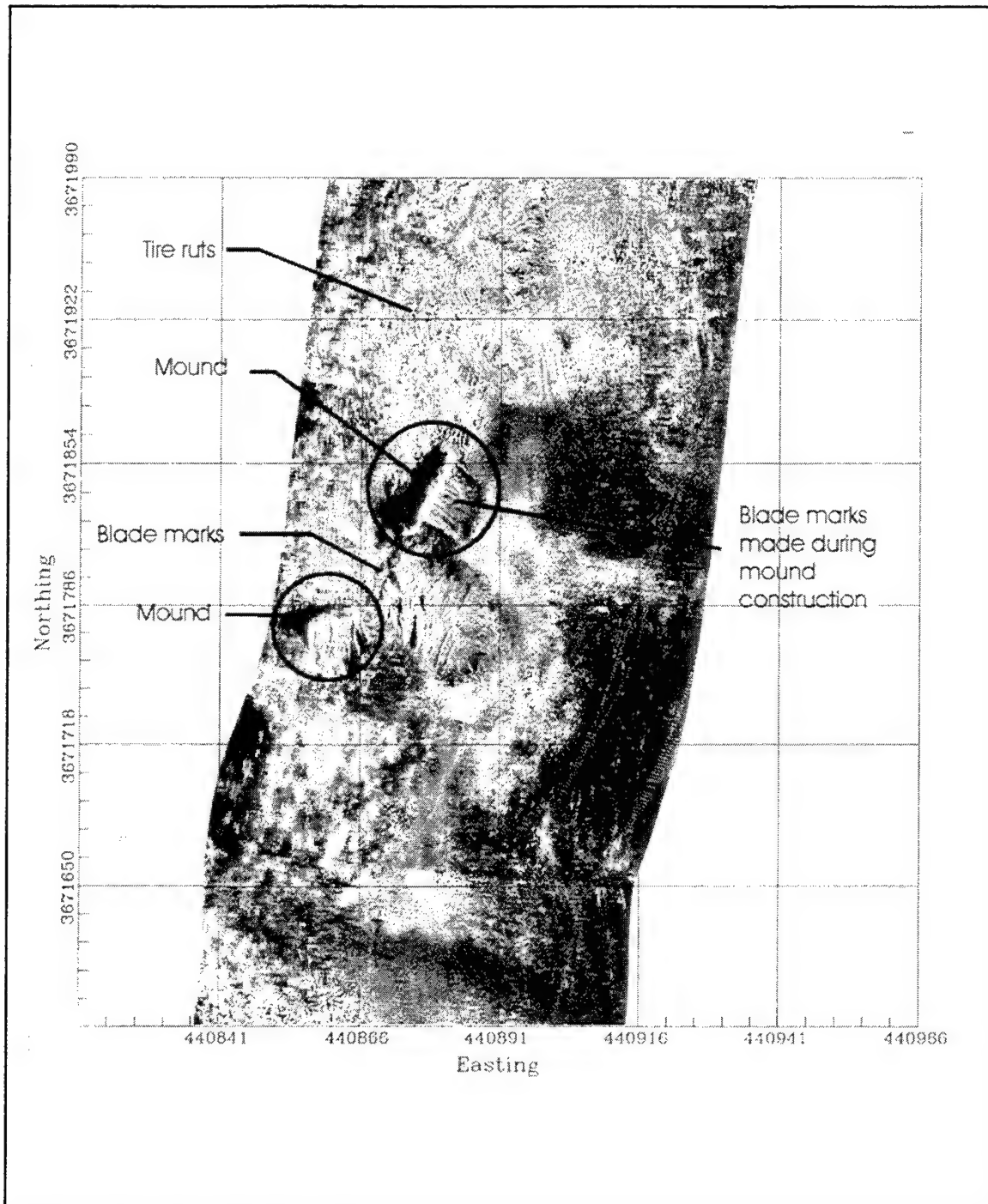


Figure 16. Sonar images of two mounds surrounded by tire ruts and blade marks as detected along survey line SL07

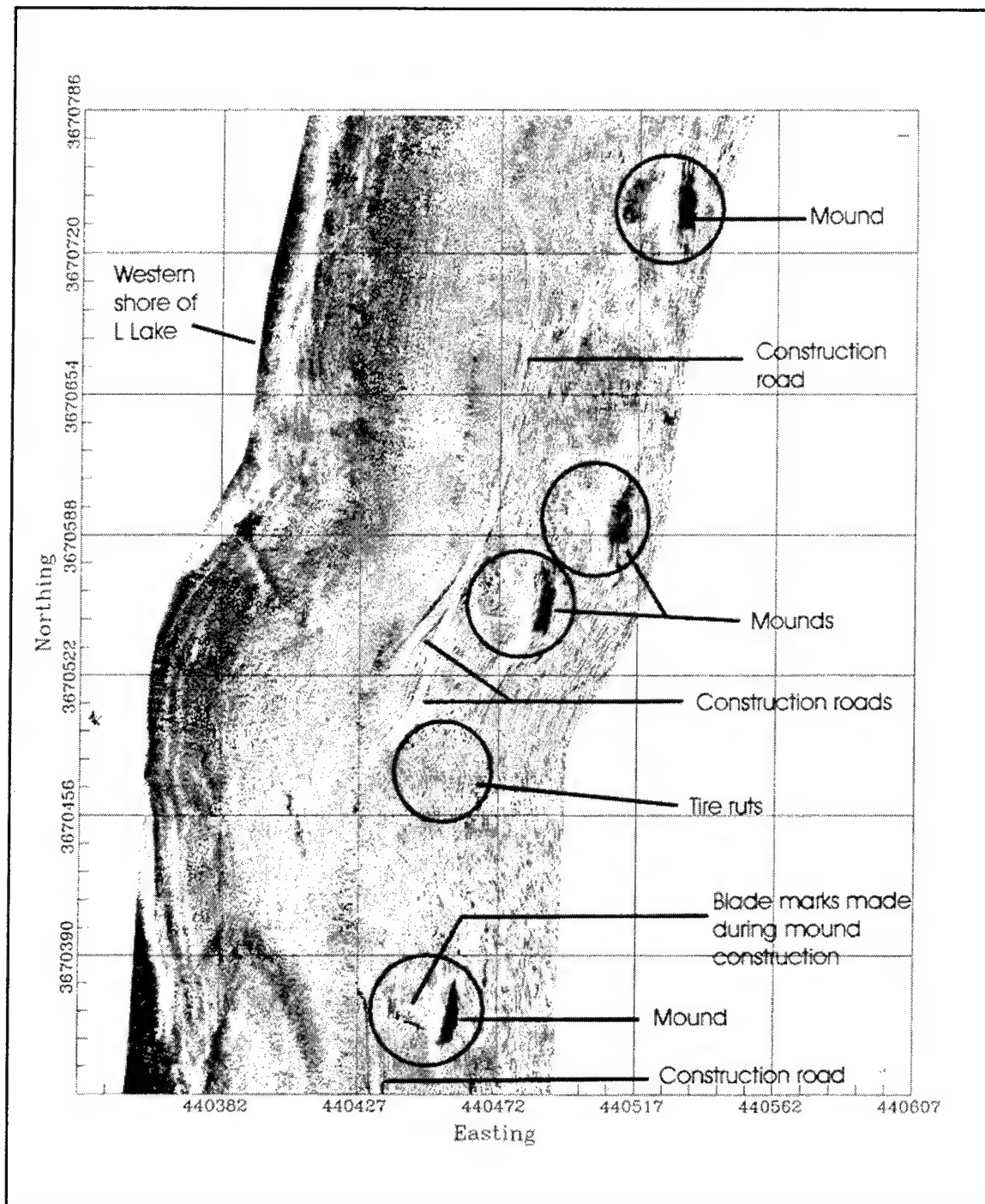


Figure 17. Sonar images of at least four mounds along survey line SL06. A number of construction roads are also visible

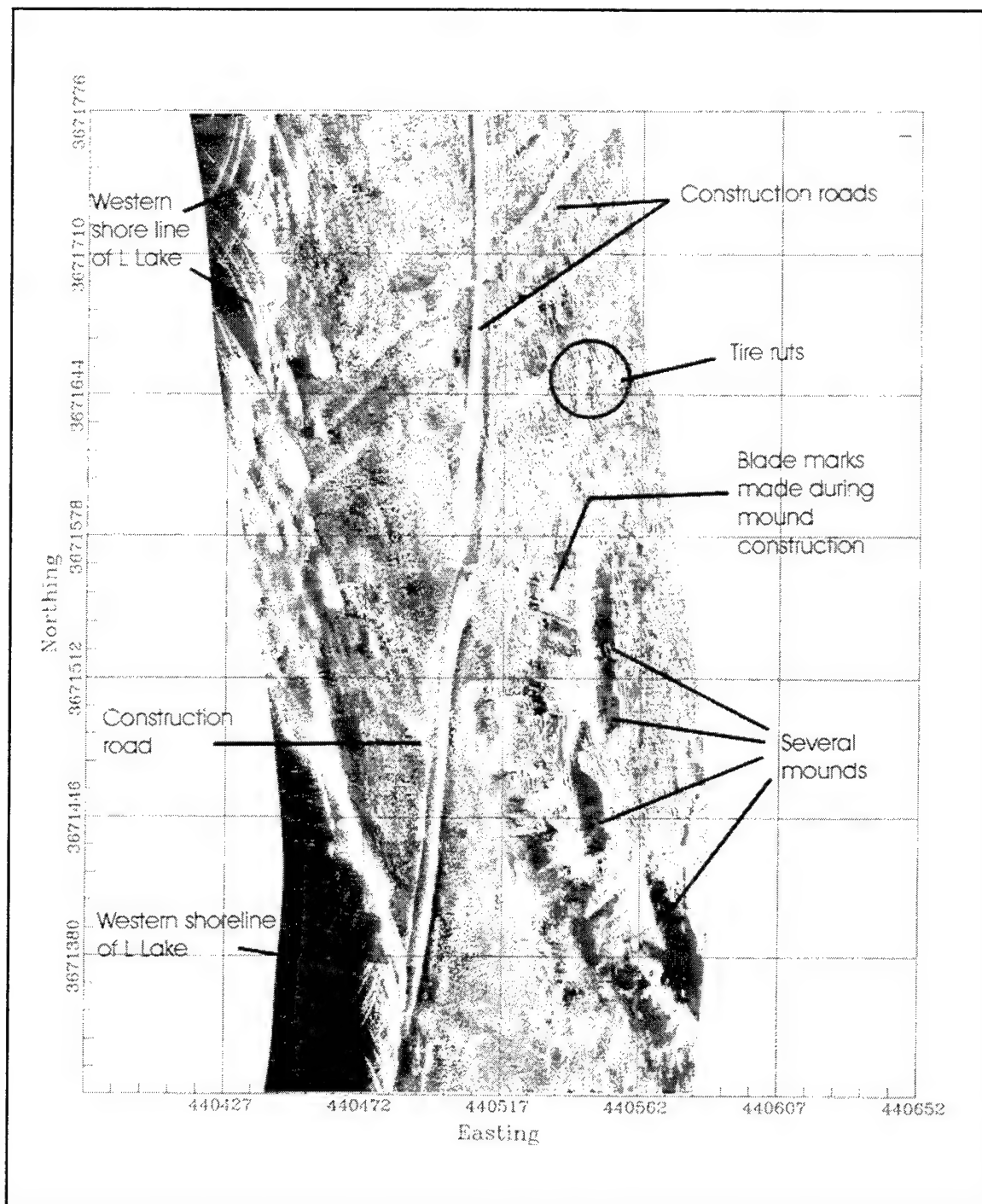


Figure 18. Sonar images of several mounds along one of the construction roads as detected along survey line SL06. The left side of the image is the western shoreline of the lake

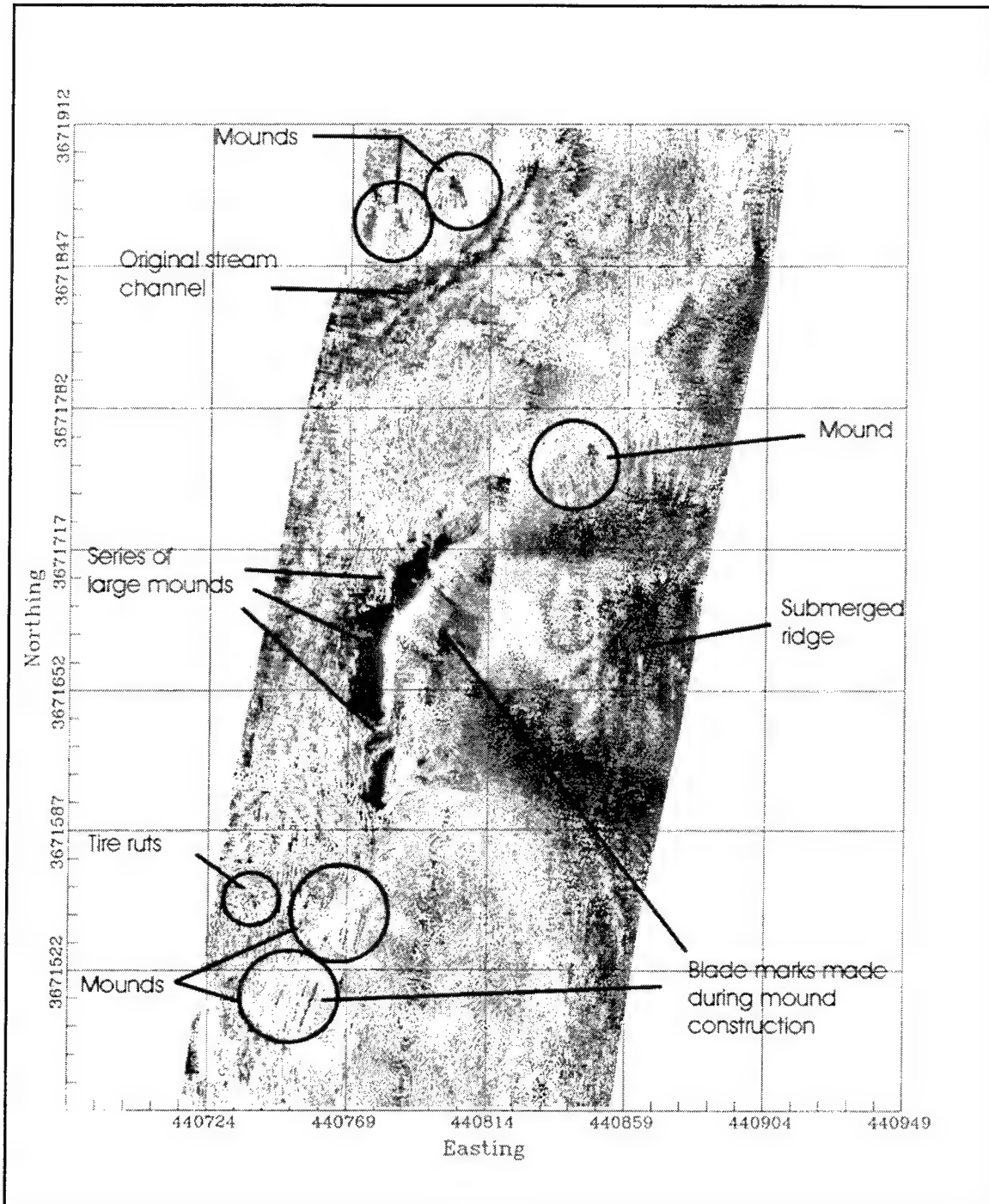


Figure 19. A group of large mounds at the base of a submerged ridge as interpreted along survey line SL03. Smaller mounds and the original stream channel are also detected

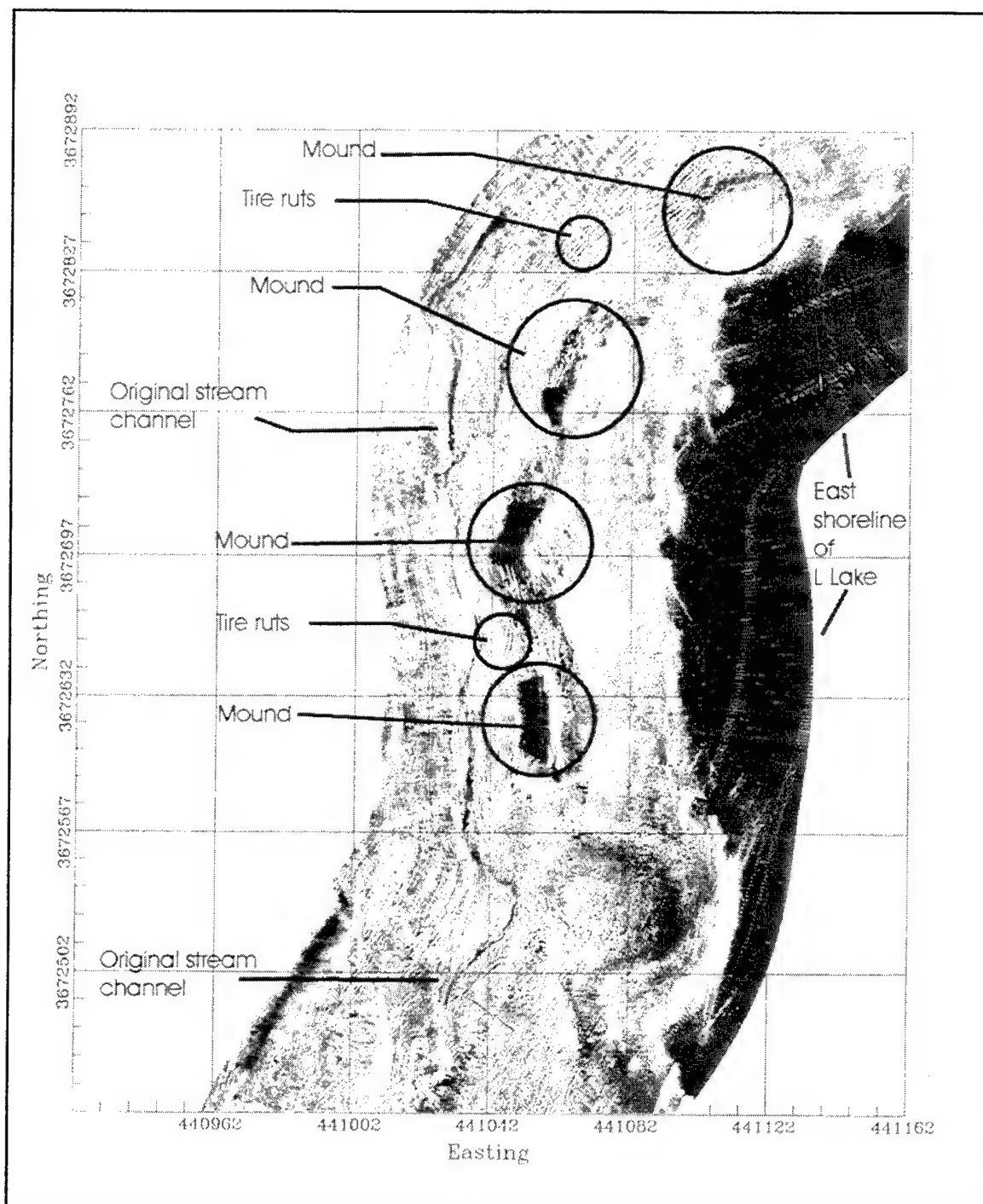


Figure 20. Sonar images of three mounds next to the original stream channel as detected along survey line SL07

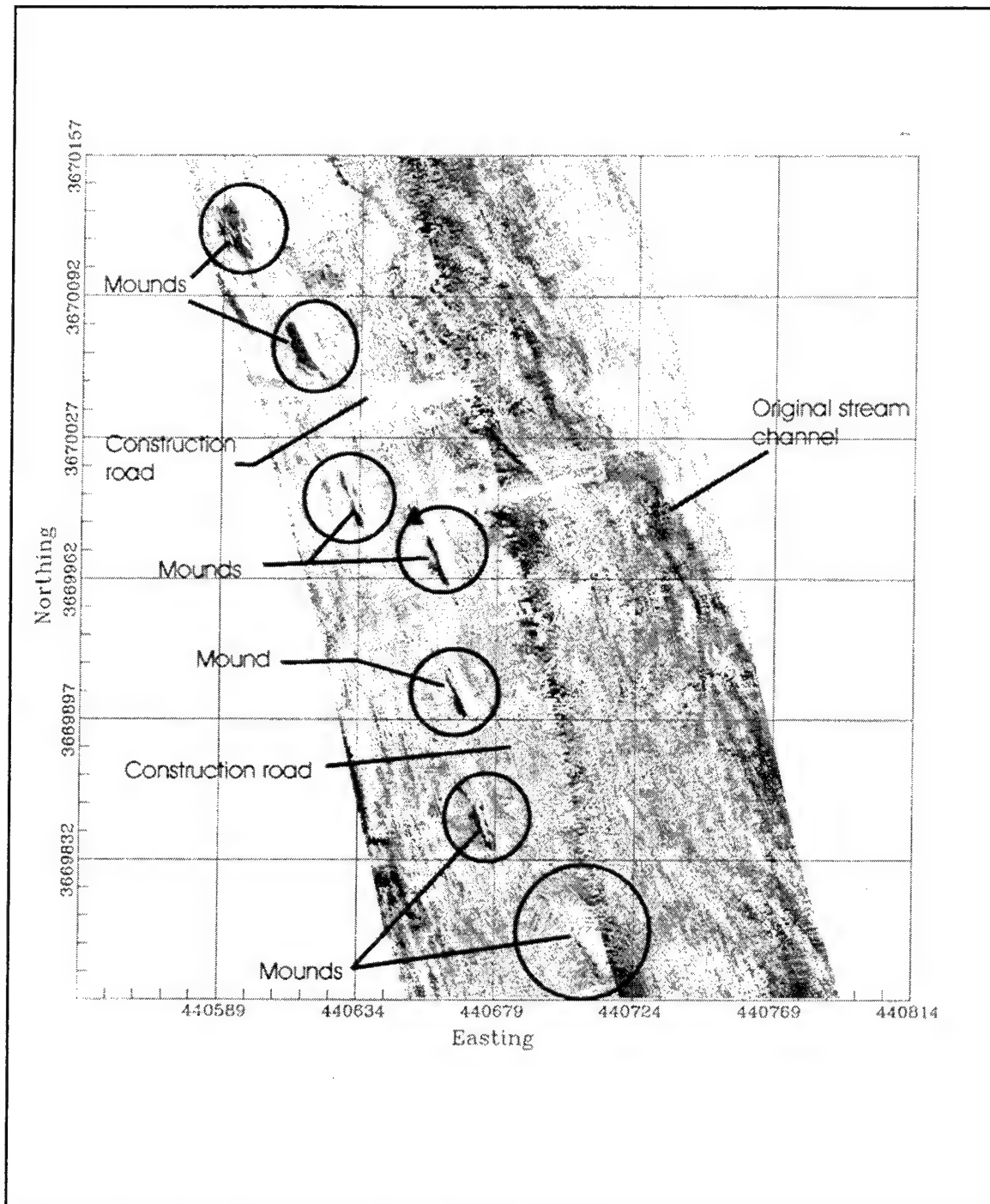


Figure 21. Sonar images of several small mounds along survey line SL03. The original stream channel and construction roads are also detected

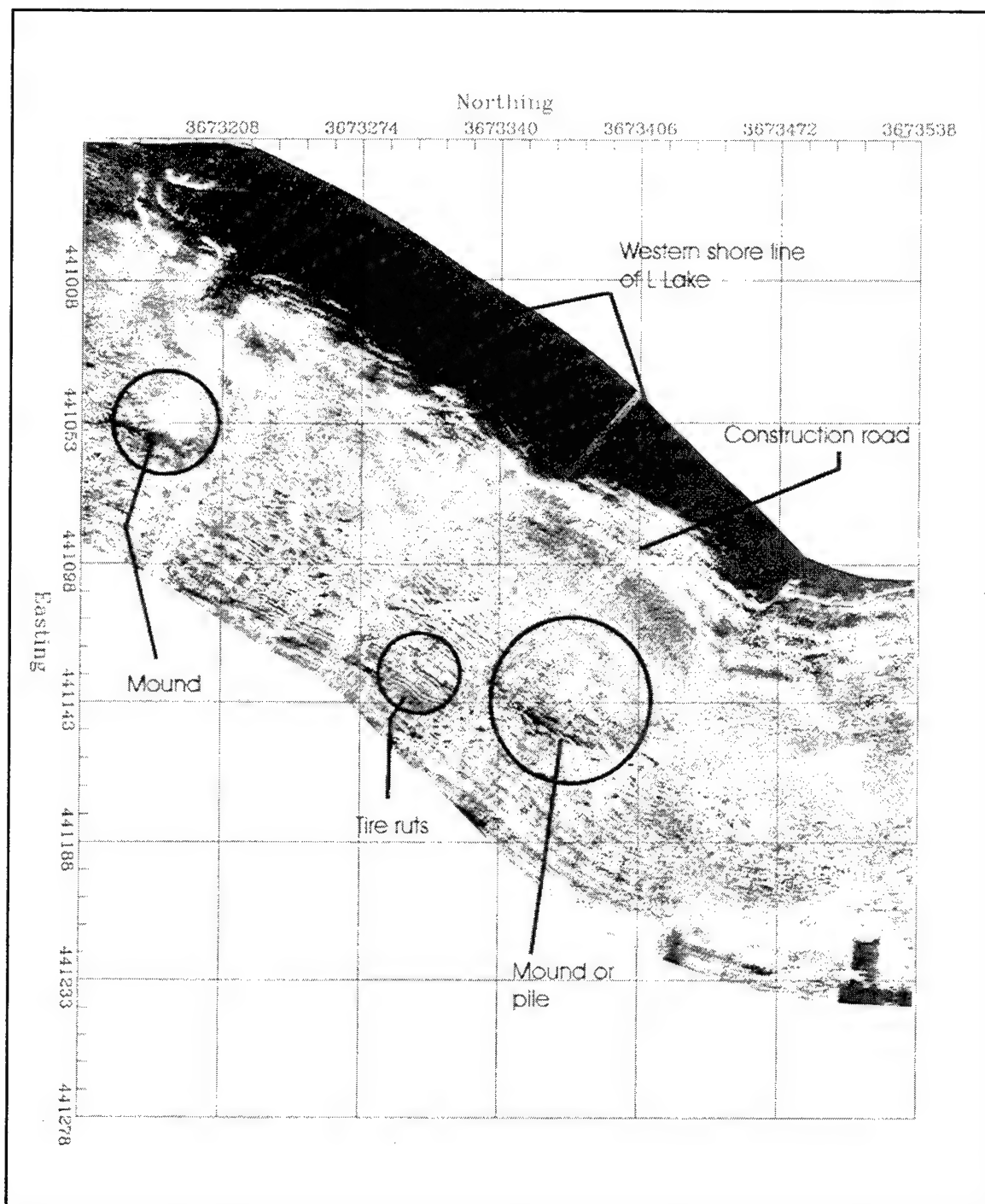


Figure 22. Sonar images of two mounds near the start of survey line SL06. Interpreted tire ruts are also visible

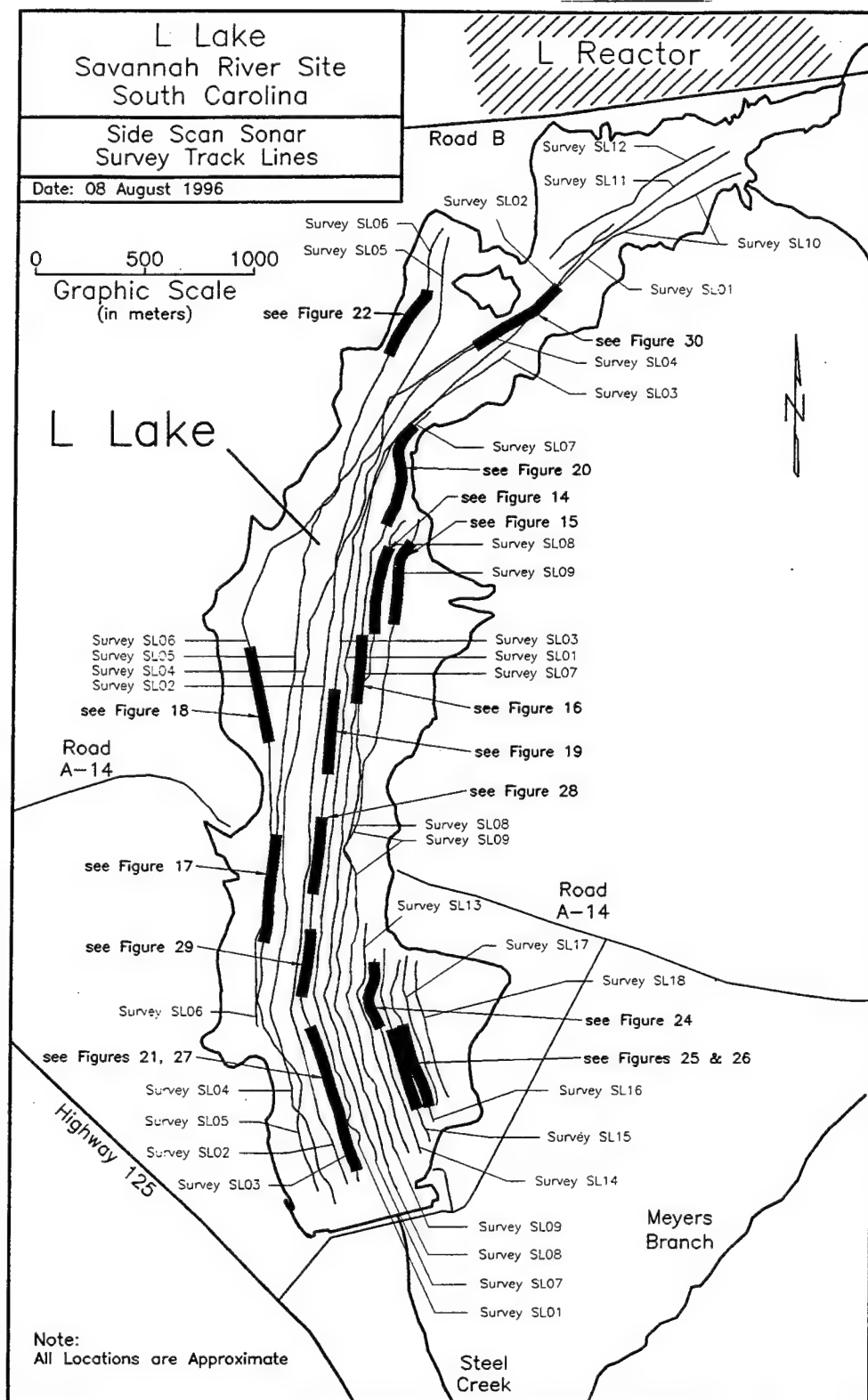


Figure 23. Site map of L Lake illustrating the sonar track lines and locations of the sonar images presented in the report

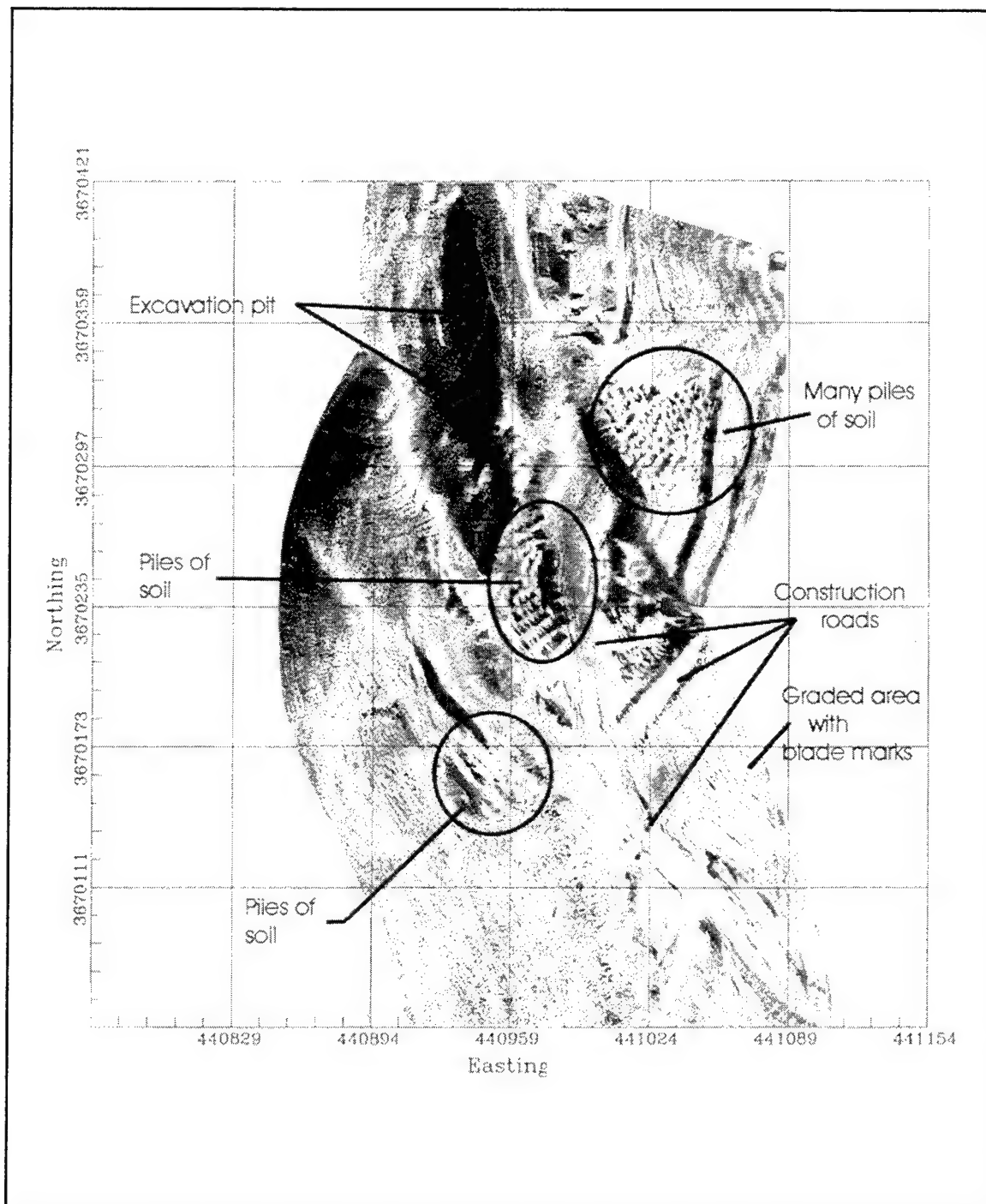


Figure 24. Sonar images of piles of soil, excavation pits, and construction roads as detected along survey line SL14

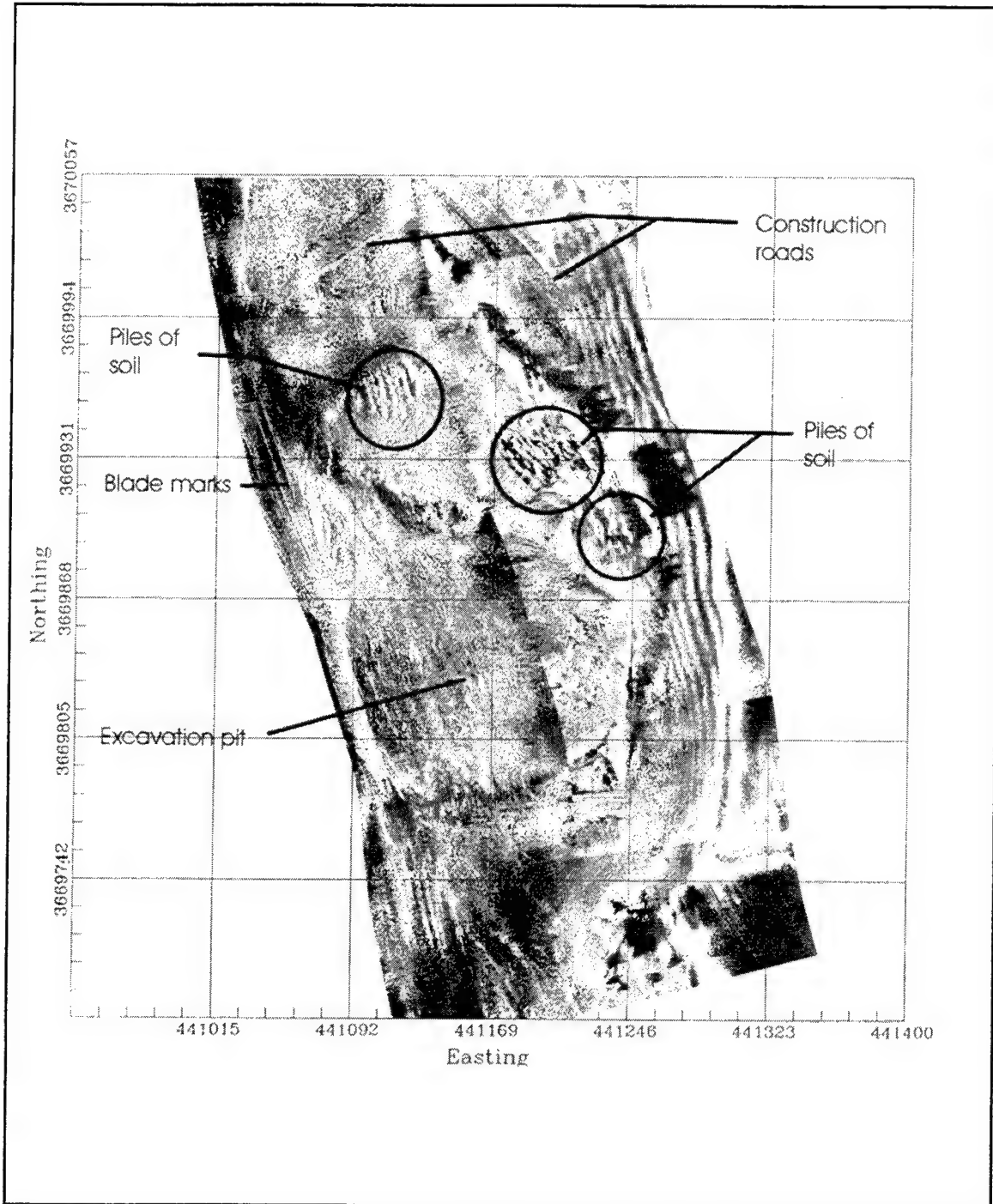


Figure 25. Sonar images of piles of soil, excavation pits as detected along survey line SL16

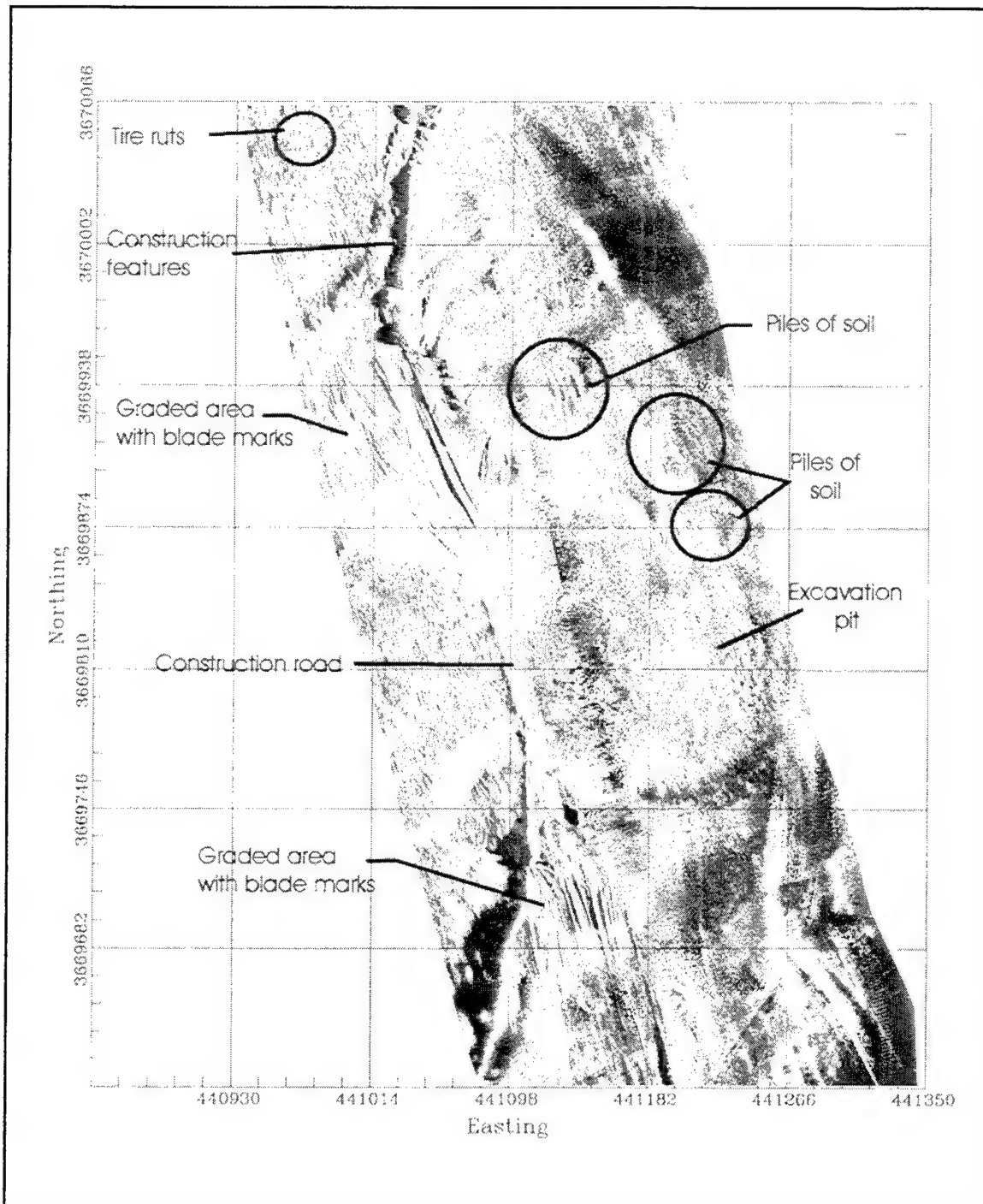


Figure 26. Sonar images indicating areas of construction activity near an excavation pit along survey line SL15 (see also Figure 26)

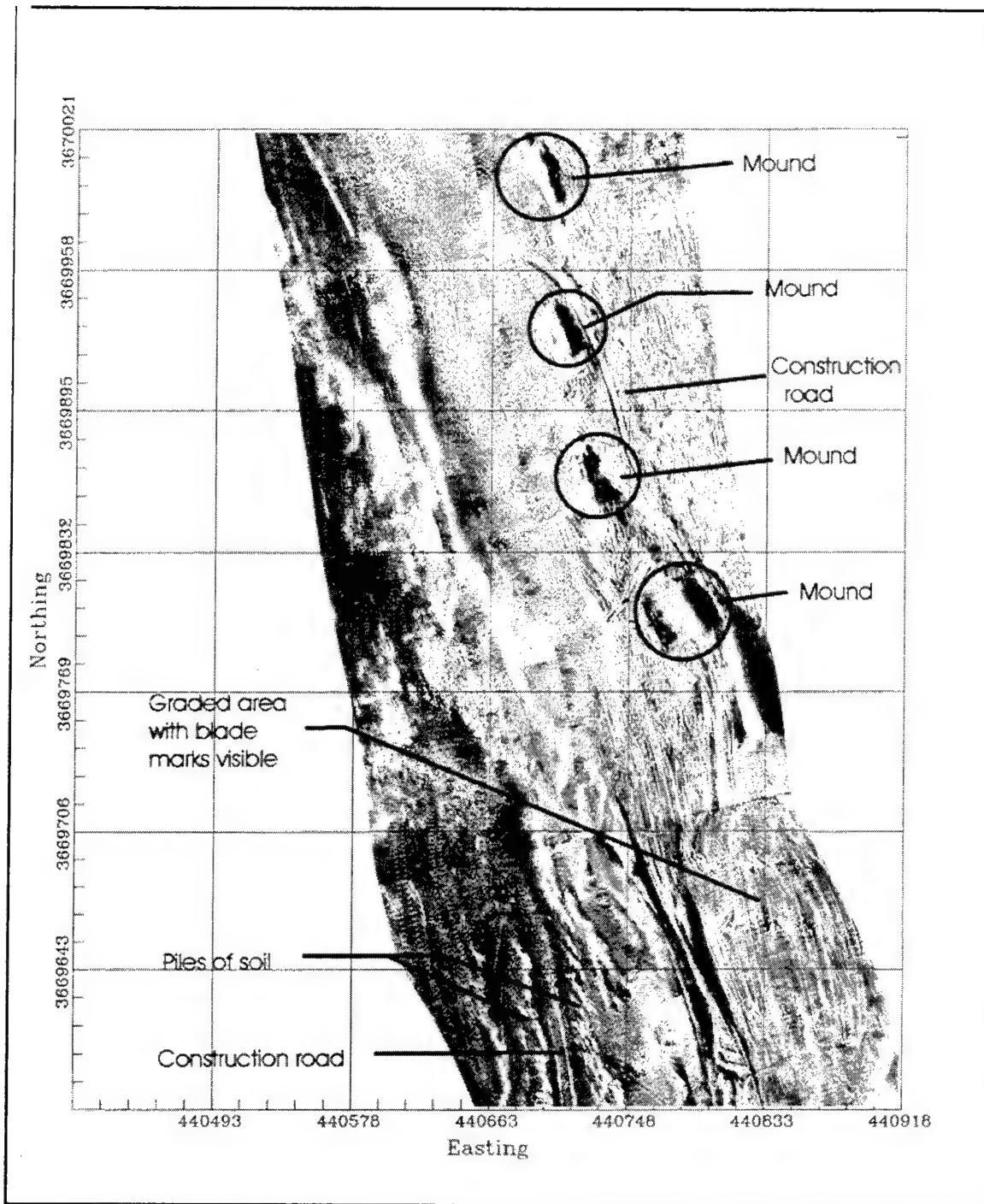


Figure 27. Sonar images of a graded area and piles of soil as detected near the dam along survey line SL02. Also note the four mounds and construction roads

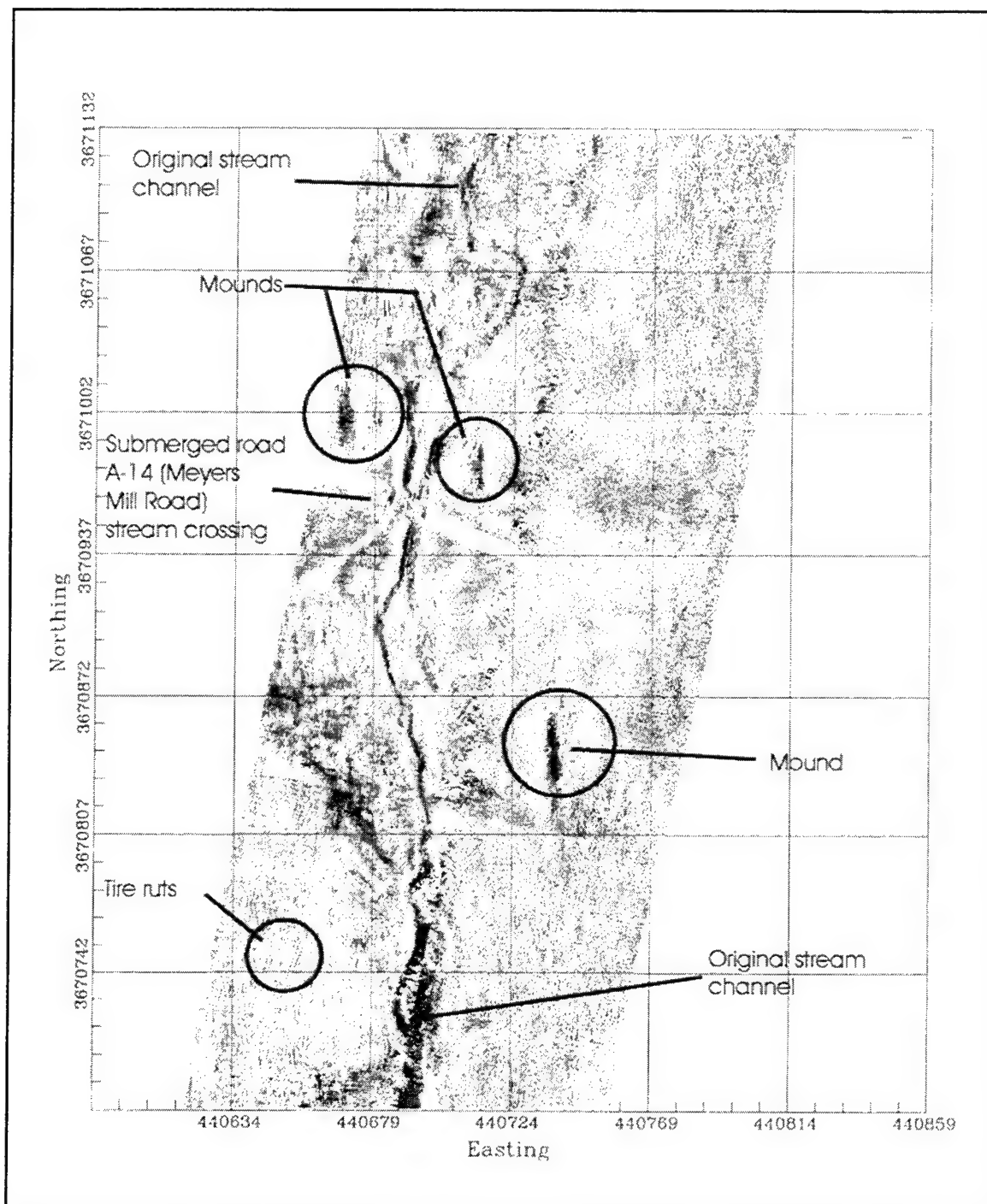


Figure 28. Sonar images along survey line SL03 of the old Road A-14 (Meyers Mill Road) stream crossing, at least three mounds, and the original stream channel

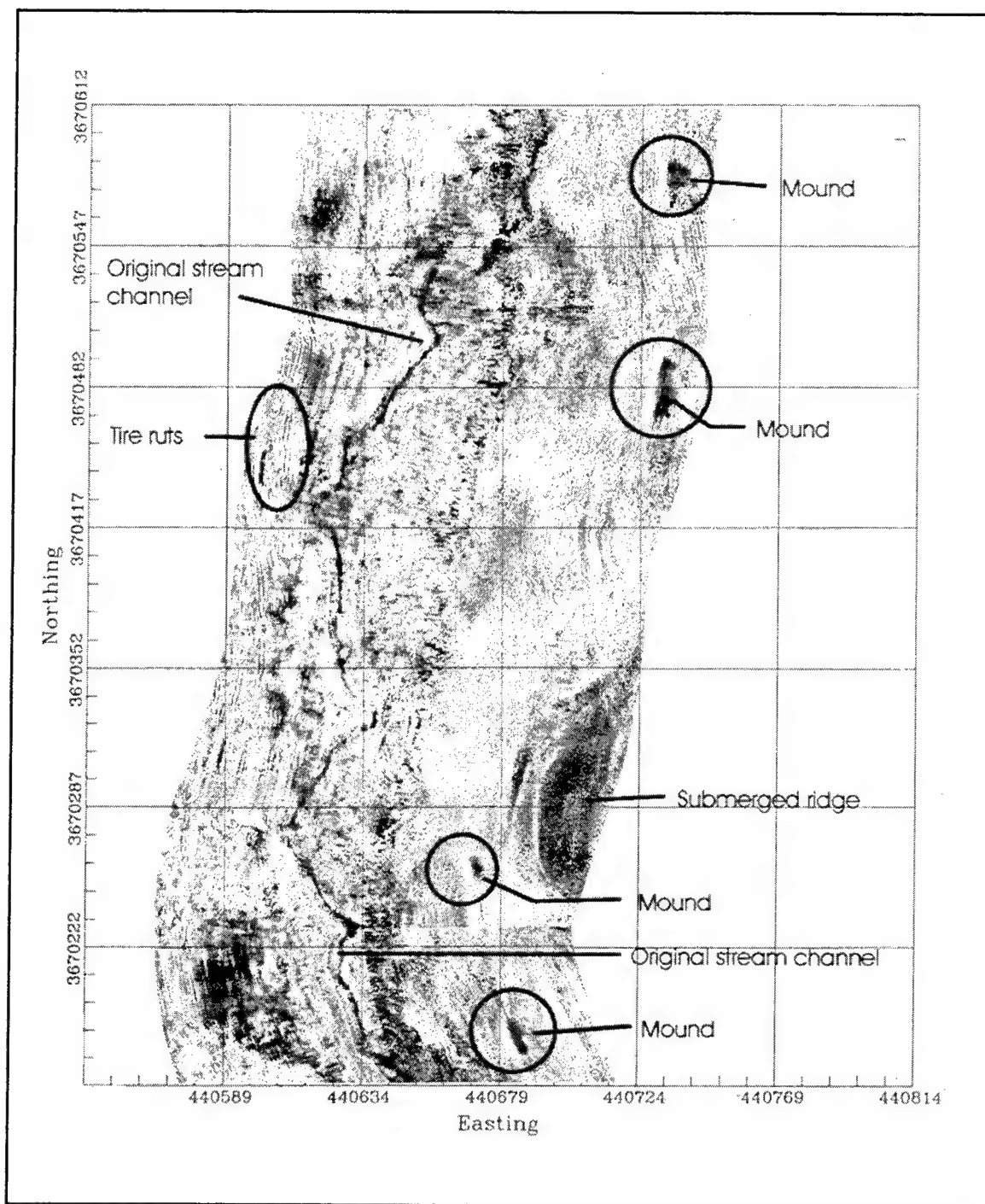


Figure 29. Sonar images of the original stream channel and several mounds along survey line SL03

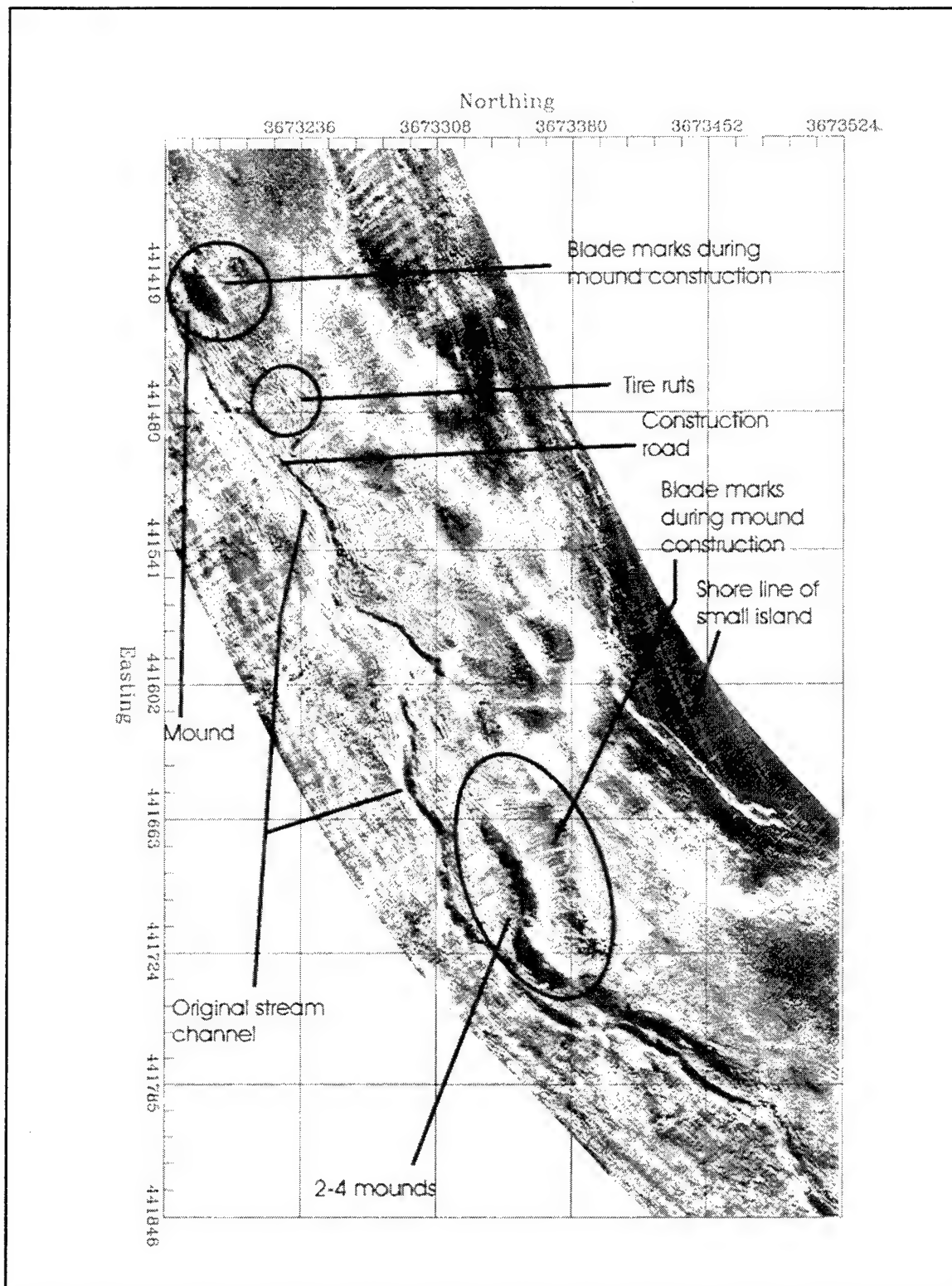


Figure 30. Sonar images of the original stream channel and several mounds as detected along survey line SL03

Appendix A

Positioning Information for the Side Scan Sonar Survey Data

Survey Line SL01
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 13:56:55 to 14:37:41 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
135652	440899.1	3669579.5	59.7	140716	440720.6	3670596.8	54.0
135704	440898.9	3669593.5	60.8	140728	440721.6	3670620.2	52.7
135716	440902.4	3669607.0	58.8	140740	440723.7	3670643.8	52.5
135728	440902.6	3669620.0	54.2	140752	440727.1	3670667.0	51.6
135740	440898.7	3669633.0	48.1	140804	440729.9	3670690.5	53.5
135752	440890.2	3669643.0	37.3	140816	440732.3	3670714.0	54.1
135804	440879.3	3669651.2	44.4	140828	440735.1	3670738.0	56.2
135816	440867.1	3669658.2	42.6	140840	440738.3	3670761.2	54.7
135828	440856.0	3669666.8	39.9	140852	440742.0	3670784.8	53.3
135840	440849.4	3669678.5	40.0	140904	440745.1	3670808.0	50.3
135852	440849.6	3669692.0	41.5	140916	440748.0	3670832.0	47.4
135904	440854.1	3669705.2	37.2	140928	440750.4	3670855.8	44.6
135916	440859.0	3669718.8	45.9	140940	440752.0	3670879.5	41.5
135928	440859.0	3669732.8	61.4	140952	440752.7	3670903.0	44.1
135940	440858.6	3669748.0	64.2	141004	440753.7	3670926.5	41.3
135952	440855.1	3669764.2	64.9	141016	440756.0	3670950.0	41.7
140004	440845.3	3669782.5	64.5	141028	440759.2	3670973.8	46.8
140016	440834.9	3669802.5	64.7	141040	440762.7	3670997.0	51.2
140028	440830.9	3669825.5	65.8	141052	440766.3	3671020.5	50.9
140040	440826.5	3669848.0	65.5	141104	440768.8	3671044.0	50.2
140052	440819.9	3669870.5	64.5	141116	440770.2	3671067.8	48.6
140104	440811.3	3669892.0	65.1	141128	440770.8	3671091.2	48.7
140116	440796.8	3669910.2	64.5	141140	440770.9	3671115.0	47.3
140128	440786.7	3669930.8	64.1	141152	440772.0	3671138.2	48.7
140140	440782.4	3669953.8	64.8	141204	440774.7	3671161.5	51.6
140152	440777.7	3669977.0	64.0	141216	440777.8	3671184.5	51.2
140204	440772.9	3670001.2	—	141228	440781.4	3671207.5	50.7
140216	440766.0	3670024.5	61.0	141240	440784.2	3671230.8	49.8
140228	440758.8	3670045.8	64.7	141252	440786.2	3671254.0	49.1
140240	440751.5	3670068.2	63.6	141304	440788.5	3671277.5	46.3
140252	440743.8	3670090.8	62.7	141316	440791.0	3671301.0	44.6
140304	440735.8	3670113.2	60.3	141328	440793.3	3671324.5	43.3
140316	440727.5	3670135.0	61.4	141340	440795.4	3671348.0	43.7
140328	440721.6	3670158.0	58.8	141352	440797.0	3671372.0	45.2
140340	440716.1	3670181.0	56.6	141404	440799.1	3671395.5	47.0
140352	440709.8	3670203.5	53.1	141416	440802.0	3671419.0	47.1
140404	440703.4	3670225.8	51.7	141428	440805.8	3671442.5	46.8
140416	440696.3	3670248.0	49.8	141440	440810.3	3671466.0	45.7
140428	440689.8	3670270.5	49.1	141452	440813.1	3671489.5	41.6
140440	440691.4	3670293.5	42.5	141504	440813.4	3671513.5	42.5
140452	440695.2	3670316.8	42.2	141516	440812.1	3671536.8	42.5
140504	440698.2	3670340.2	40.9	141528	440812.5	3671560.5	36.6
140516	440701.5	3670363.5	47.6	141540	440816.5	3671582.8	30.9
140528	440704.1	3670387.0	54.9	141552	440821.4	3671605.5	25.2
140540	440705.7	3670410.5	55.0	141604	440824.8	3671628.5	20.4
140552	440706.9	3670434.0	55.3	141616	440827.3	3671651.8	15.3
140604	440707.9	3670457.2	57.5	141628	440829.4	3671675.0	12.4
140616	440710.3	3670480.5	58.3	141640	440831.2	3671698.5	11.5
140628	440714.0	3670503.8	58.2	141652	440829.4	3671721.5	18.4
140640	440719.1	3670526.5	57.6	141704	440822.2	3671743.8	28.9
140652	440722.3	3670549.8	56.1	141716	440817.8	3671766.8	31.7
140704	440720.7	3670573.2	54.9	141728	440820.2	3671789.8	44.5

Survey Line SL01

L Lake

Savannah River Plant, South Carolina

Survey Direction: North

Survey Date/Time: 20 June 1996, 13:56:55 to 14:37:41 (UTC)

Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
141740	440825.9	3671812.0	46.2	142740	441152.9	3672899.5	20.9
141752	440831.8	3671835.2	45.9	142752	441169.9	3672916.0	11.1
141804	440838.1	3671858.5	45.3	142804	441187.7	3672931.2	10.6
141816	440843.4	3671881.8	44.5	142816	441205.8	3672946.2	11.9
141828	440848.3	3671905.0	45.7	142828	441222.9	3672962.5	14.6
141840	440852.7	3671928.2	47.3	142840	441238.7	3672979.5	14.7
141852	440856.4	3671951.8	47.4	142852	441254.8	3672996.2	17.8
141904	440860.0	3671974.8	47.0	142904	441271.4	3673012.8	26.4
141916	440861.5	3671998.5	46.7	142916	441287.8	3673029.5	33.4
141928	440863.3	3672022.0	46.4	142928	441304.2	3673046.2	33.5
141940	440865.5	3672046.0	46.5	142940	441321.9	3673061.5	32.9
141952	440867.3	3672069.5	47.5	142952	441339.6	3673076.8	35.9
142004	440868.6	3672093.5	43.4	143004	441357.6	3673092.0	36.8
142016	440870.4	3672117.0	43.5	143016	441375.6	3673107.2	36.0
142028	440873.0	3672141.0	40.6	143028	441394.3	3673122.0	32.5
142040	440876.0	3672163.5	38.5	143040	441412.6	3673137.5	32.8
142052	440879.1	3672187.0	39.6	143052	441430.4	3673153.0	35.3
142104	440881.7	3672210.5	39.3	143104	441448.2	3673168.0	31.6
142116	440883.2	3672234.5	37.7	143116	441466.5	3673183.0	33.1
142128	440884.1	3672258.0	38.8	143128	441484.9	3673198.0	30.8
142140	440884.1	3672281.5	36.9	143140	441503.6	3673212.5	30.0
142152	440884.2	3672304.5	34.0	143152	441523.2	3673226.0	30.4
142204	440891.2	3672326.2	32.3	143204	441542.5	3673239.8	29.6
142216	440895.9	3672349.0	28.8	143216	441560.6	3673255.0	32.2
142228	440899.3	3672371.8	26.8	143228	441577.7	3673271.5	30.2
142240	440903.7	3672395.0	27.1	143240	441593.0	3673289.5	30.4
142252	440908.2	3672417.5	27.3	143252	441608.6	3673307.5	28.9
142304	440912.8	3672440.8	26.3	143304	441624.8	3673324.5	26.9
142316	440917.4	3672463.5	27.4	143316	441640.4	3673342.0	24.4
142328	440922.0	3672486.5	27.6	143328	441655.6	3673360.2	19.9
142340	440926.4	3672509.8	28.5	143340	441670.9	3673378.0	16.7
142352	440930.5	3672532.8	28.8	143352	441686.7	3673395.8	16.2
142404	440934.5	3672556.0	35.2	143404	441703.8	3673412.2	17.8
142416	440938.1	3672579.0	34.7	143416	441720.8	3673428.5	18.3
142428	440941.8	3672602.2	34.5	143428	441737.0	3673445.2	18.3
142440	440947.3	3672625.0	34.2	143440	441752.5	3673463.0	19.1
142452	440955.6	3672646.5	39.5	143452	441767.8	3673480.8	23.2
142504	440966.0	3672667.5	40.4	143504	441784.1	3673497.5	17.6
142516	440975.2	3672689.0	39.4	143516	441801.1	3673514.0	22.8
142528	440982.4	3672711.0	39.8	143528	441817.9	3673530.8	15.6
142540	440988.7	3672733.5	39.6	143540	441834.1	3673548.0	17.5
142552	441003.1	3672750.5	38.5	143552	441850.3	3673565.0	20.7
142604	441018.4	3672768.5	35.6	143604	441866.9	3673581.5	25.2
142616	441034.8	3672785.2	29.5	143616	441884.1	3673597.8	23.9
142628	441052.3	3672801.0	24.3	143628	441901.8	3673613.5	22.4
142640	441068.9	3672818.0	25.9	143640	441919.3	3673629.5	22.2
142652	441084.8	3672835.0	25.9	143652	441937.1	3673645.0	21.9
142704	441100.3	3672852.5	18.4	143704	441955.3	3673659.8	21.1
142716	441117.6	3672868.0	16.3	143716	441974.5	3673673.5	20.8
142728	441135.0	3672884.0	26.8	143728	441992.4	3673688.5	22.7

Survey Line SL02
L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 20 June 1996, 14:50:38 to 15:34:51 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
145035	442019.6	3673769.0	21.4	150059	441177.6	3673068.0	35.1
145047	442006.7	3673758.0	22.3	150111	441160.6	3673054.0	35.6
145059	441994.0	3673746.0	22.2	150123	441144.8	3673038.5	35.5
145111	441978.4	3673733.5	22.8	150135	441130.5	3673021.8	35.4
145123	441961.3	3673722.5	8.1	150147	441116.9	3673004.0	36.5
145135	441945.2	3673710.2	7.0	150159	441102.7	3672987.0	36.4
145147	441931.3	3673695.5	21.6	150211	441089.4	3672969.0	37.3
145159	441919.7	3673678.5	27.9	150223	441077.8	3672950.0	37.3
145211	441907.8	3673662.0	28.1	150235	441066.3	3672931.0	37.5
145223	441894.1	3673646.5	20.3	150247	441054.8	3672912.0	37.2
145235	441881.5	3673630.8	19.0	150259	441043.6	3672892.5	38.3
145247	441869.8	3673614.5	18.6	150311	441032.4	3672873.5	38.3
145259	441857.9	3673598.5	18.4	150323	441020.5	3672855.0	38.2
145311	441844.7	3673583.2	18.4	150335	441008.6	3672836.0	39.5
145323	441830.3	3673569.0	17.9	150347	440997.6	3672817.0	40.0
145335	441815.7	3673554.2	19.2	150359	440987.8	3672797.2	40.9
145347	441801.9	3673539.0	16.4	150411	440979.6	3672776.8	39.4
145359	441789.1	3673522.5	16.8	150423	440973.2	3672755.5	39.3
145411	441777.5	3673505.5	17.5	150435	440967.0	3672733.8	—
145423	441765.1	3673489.5	18.2	150447	440959.5	3672712.5	39.4
145435	441750.5	3673475.2	17.5	150459	440950.3	3672691.8	37.4
145447	441736.5	3673459.0	17.0	150511	440938.1	3672672.8	35.3
145459	441722.7	3673441.5	17.5	150523	440923.0	3672656.5	34.0
145511	441708.4	3673424.8	17.0	150535	440911.3	3672637.2	16.9
145523	441694.0	3673408.5	14.9	150547	440906.6	3672615.5	23.5
145535	441679.9	3673391.8	14.8	150559	440903.9	3672592.8	20.7
145547	441665.5	3673375.0	16.1	150611	440901.5	3672570.5	18.9
145559	441648.5	3673361.0	18.4	150623	440902.8	3672548.0	21.4
145611	441629.1	3673349.8	18.1	150635	440902.7	3672525.5	22.7
145623	441610.2	3673338.0	18.1	150647	440898.0	3672503.2	—
145635	441592.5	3673325.0	23.6	150659	440890.5	3672482.2	22.5
145647	441574.3	3673312.5	26.9	150711	440884.8	3672460.5	22.0
145659	441555.4	3673301.2	21.7	150723	440876.5	3672440.2	22.4
145711	441536.5	3673290.0	22.2	150735	440866.9	3672420.2	21.9
145723	441517.5	3673279.0	27.0	150747	440857.5	3672400.5	21.7
145735	441498.5	3673268.0	20.7	150759	440846.8	3672381.5	21.6
145747	441479.2	3673257.0	18.0	150811	440833.7	3672363.8	21.1
145759	441459.6	3673246.5	18.5	150823	440819.9	3672346.5	21.3
145811	441439.8	3673236.5	17.3	150835	440808.5	3672327.8	22.2
145823	441420.3	3673226.0	16.3	150847	440800.8	3672307.0	23.5
145835	441401.0	3673214.8	19.4	150859	440793.1	3672286.2	25.7
145847	441381.6	3673203.2	21.2	150911	440784.9	3672265.5	27.1
145859	441361.4	3673193.0	23.0	150923	440777.6	3672244.5	29.4
145911	441341.9	3673182.5	22.6	150935	440773.9	3672222.5	32.0
145923	441324.7	3673168.8	22.5	150947	440770.8	3672200.5	37.8
145935	441306.5	3673156.2	23.4	150959	440768.6	3672177.8	39.3
145947	441287.9	3673144.0	24.5	151011	440766.9	3672155.2	35.3
145959	441269.5	3673131.0	24.8	151023	440765.7	3672133.0	33.3
150011	441251.4	3673117.8	27.1	151035	440764.7	3672110.0	32.5
150023	441232.9	3673105.2	31.8	151047	440764.8	3672087.2	34.9
150035	441214.2	3673093.5	34.2	151059	440765.4	3672064.8	35.7
150047	441196.0	3673080.8	34.9	151111	440766.0	3672042.0	37.5

Survey Line SL02

L Lake

Savannah River Plant, South Carolina

Survey Direction: South
 Survey Date/Time: 20 June 1996, 14:50:38 to 15:34:51 (UTC)
 Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
151123	440764.2	3672019.5	39.8	152159	440653.0	3670819.5	58.2
151135	440760.1	3671997.0	40.5	152211	440647.2	3670798.0	56.1
151147	440754.6	3671975.2	41.2	152223	440643.0	3670776.5	56.1
151159	440748.9	3671953.2	43.7	152235	440641.1	3670754.5	56.0
151211	440745.0	3671931.0	41.3	152247	440640.5	3670732.5	56.8
151223	440742.5	3671908.5	40.3	152259	440638.9	3670710.5	57.9
151235	440740.2	3671885.5	42.5	152311	440637.4	3670688.5	58.1
151247	440738.1	3671863.0	37.7	152323	440636.7	3670666.5	58.3
151259	440736.0	3671840.2	48.2	152335	440635.5	3670644.0	57.7
151311	440733.5	3671817.5	49.2	152347	440634.1	3670622.0	57.7
151323	440731.5	3671794.8	49.1	152359	440633.0	3670600.0	58.3
151335	440729.5	3671772.0	48.7	152411	440631.8	3670577.8	59.0
151347	440728.2	3671749.0	48.5	152423	440631.0	3670555.2	—
151359	440727.0	3671726.0	46.3	152435	440629.9	3670532.8	59.4
151411	440726.1	3671702.8	39.9	152447	440628.6	3670510.2	59.9
151423	440725.0	3671680.5	35.8	152459	440626.6	3670487.5	60.1
151435	440722.5	3671657.5	41.6	152511	440622.6	3670465.0	60.5
151447	440718.5	3671634.8	45.6	152523	440618.0	3670442.5	60.0
151459	440715.6	3671611.8	48.7	152535	440614.3	3670420.0	61.3
151511	440713.4	3671589.5	48.5	152547	440611.9	3670397.2	62.9
151523	440711.4	3671566.5	46.7	152559	440609.6	3670374.5	63.2
151535	440709.4	3671543.2	46.2	152611	440607.0	3670351.8	60.5
151547	440707.2	3671520.5	46.3	152623	440604.2	3670329.0	61.4
151559	440704.7	3671497.5	44.5	152635	440601.8	3670306.2	63.1
151611	440701.6	3671474.8	45.2	152647	440599.0	3670283.0	61.9
151623	440698.3	3671452.0	46.5	152659	440595.9	3670260.0	62.0
151635	440695.0	3671429.2	48.1	152711	440592.3	3670237.0	61.9
151647	440692.1	3671406.5	48.1	152723	440588.6	3670214.0	61.2
151659	440689.3	3671383.8	49.0	152735	440588.1	3670191.5	60.9
151711	440685.9	3671361.0	48.0	152747	440592.4	3670168.5	60.9
151723	440682.5	3671338.2	51.5	152759	440599.5	3670146.0	59.6
151735	440680.1	3671315.5	52.2	152811	440607.8	3670123.8	58.7
151747	440678.5	3671292.5	53.9	152823	440615.0	3670101.2	57.2
151759	440677.5	3671270.0	53.6	152835	440621.5	3670079.0	48.9
151811	440675.7	3671247.0	53.8	152847	440629.1	3670056.5	50.5
151823	440673.2	3671224.0	54.6	152859	440636.0	3670034.2	44.5
151835	440670.7	3671201.2	54.4	152911	440642.5	3670012.0	—
151847	440668.7	3671178.5	54.3	152923	440648.2	3669990.0	39.3
151859	440667.3	3671156.0	55.0	153043	440686.3	3669840.2	26.7
151911	440666.4	3671133.5	55.3	153058	440693.1	3669812.5	23.5
151923	440665.9	3671111.0	55.1	153112	440699.8	3669786.8	20.0
151935	440665.6	3671088.2	55.0	153124	440705.5	3669764.5	19.7
151947	440664.6	3671065.5	54.6	153136	440709.9	3669742.2	18.8
151959	440662.6	3671043.0	56.4	153148	440713.8	3669720.0	19.1
152011	440662.3	3671020.5	55.7	153200	440720.8	3669698.2	19.6
152023	440664.6	3670997.5	57.2	153212	440731.5	3669678.2	28.4
152035	440667.3	3670974.5	51.7	153224	440743.7	3669659.2	28.2
152047	440664.7	3670952.5	51.4	153236	440756.4	3669640.0	26.8
152059	440664.1	3670930.0	52.1	153248	440766.7	3669619.8	26.5
152111	440665.4	3670907.5	56.5	153300	440775.5	3669598.8	31.2
152123	440665.9	3670885.0	57.1	153312	440783.4	3669577.8	23.6
152135	440664.6	3670862.5	56.7	153324	440790.9	3669557.0	22.6
152147	440660.0	3670840.8	57.1	153336	440798.0	3669535.8	19.5

Survey Line SL02

L Lake

Savannah River Plant, South Carolina

Survey Direction: South

Survey Date/Time: 20 June 1996, 14:50:38 to 15:34:51 (UTC)

Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
153348	440804.9	3669514.0	21.1	153424	440830.0	3669451.8	28.1
153400	440812.8	3669493.2	21.9	153436	440838.4	3669430.5	28.2
153412	440821.7	3669473.0	30.0	153448	440846.5	3669409.2	28.8

Survey Line SL01

L Lake

Savannah River Plant, South Carolina

Survey Direction: North
 Survey Date/Time: 20 June 1996, 13:56:55 to 14:37:41 (UTC)
 Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
135652	440899.1	3669579.5	59.7	140716	440720.6	3670596.8	54.0
135704	440898.9	3669593.5	60.8	140728	440721.6	3670620.2	52.7
135716	440902.4	3669607.0	58.8	140740	440723.7	3670643.8	52.5
135728	440902.6	3669620.0	54.2	140752	440727.1	3670667.0	51.6
135740	440898.7	3669633.0	48.1	140804	440729.9	3670690.5	53.5
135752	440890.2	3669643.0	37.3	140816	440732.3	3670714.0	54.1
135804	440879.3	3669651.2	44.4	140828	440735.1	3670738.0	56.2
135816	440867.1	3669658.2	42.6	140840	440738.3	3670761.2	54.7
135828	440856.0	3669666.8	39.9	140852	440742.0	3670784.8	53.3
135840	440849.4	3669678.5	40.0	140904	440745.1	3670808.0	50.3
135852	440849.6	3669692.0	41.5	140916	440748.0	3670832.0	47.4
135904	440854.1	3669705.2	37.2	140928	440750.4	3670855.8	44.6
135916	440859.0	3669718.8	45.9	140940	440752.0	3670879.5	41.5
135928	440859.0	3669732.8	61.4	140952	440752.7	3670903.0	44.1
135940	440858.6	3669748.0	64.2	141004	440753.7	3670926.5	41.3
135952	440855.1	3669764.2	64.9	141016	440756.0	3670950.0	41.7
140004	440845.3	3669782.5	64.5	141028	440759.2	3670973.8	46.8
140016	440834.9	3669802.5	64.7	141040	440762.7	3670997.0	51.2
140028	440830.9	3669825.5	65.8	141052	440766.3	3671020.5	50.9
140040	440826.5	3669848.0	65.5	141104	440768.8	3671044.0	50.2
140052	440819.9	3669870.5	64.5	141116	440770.2	3671067.8	48.6
140104	440811.3	3669892.0	65.1	141128	440770.8	3671091.2	48.7
140116	440796.8	3669910.2	64.5	141140	440770.9	3671115.0	47.3
140128	440786.7	3669930.8	64.1	141152	440772.0	3671138.2	48.7
140140	440782.4	3669953.8	64.8	141204	440774.7	3671161.5	51.6
140152	440777.7	3669977.0	64.0	141216	440777.8	3671184.5	51.2
140204	440772.9	3670001.2	—	141228	440781.4	3671207.5	50.7
140216	440766.0	3670024.5	61.0	141240	440784.2	3671230.8	49.8
140228	440758.8	3670045.8	64.7	141252	440786.2	3671254.0	49.1
140240	440751.5	3670068.2	63.6	141304	440788.5	3671277.5	46.3
140252	440743.8	3670090.8	62.7	141316	440791.0	3671301.0	44.6
140304	440735.8	3670113.2	60.3	141328	440793.3	3671324.5	43.3
140316	440727.5	3670135.0	61.4	141340	440795.4	3671348.0	43.7
140328	440721.6	3670158.0	58.8	141352	440797.0	3671372.0	45.2
140340	440716.1	3670181.0	56.6	141404	440799.1	3671395.5	47.0
140352	440709.8	3670203.5	53.1	141416	440802.0	3671419.0	47.1
140404	440703.4	3670225.8	51.7	141428	440805.8	3671442.5	46.8
140416	440696.3	3670248.0	49.8	141440	440810.3	3671466.0	45.7
140428	440689.8	3670270.5	49.1	141452	440813.1	3671489.5	41.6
140440	440691.4	3670293.5	42.5	141504	440813.4	3671513.5	42.5
140452	440695.2	3670316.8	42.2	141516	440812.1	3671536.8	42.5
140504	440698.2	3670340.2	40.9	141528	440812.5	3671560.5	36.6
140516	440701.5	3670363.5	47.6	141540	440816.5	3671582.8	30.9
140528	440704.1	3670387.0	54.9	141552	440821.4	3671605.5	25.2
140540	440705.7	3670410.5	55.0	141604	440824.8	3671628.5	20.4
140552	440706.9	3670434.0	55.3	141616	440827.3	3671651.8	15.3
140604	440707.9	3670457.2	57.5	141628	440829.4	3671675.0	12.4
140616	440710.3	3670480.5	58.3	141640	440831.2	3671698.5	11.5
140628	440714.0	3670503.8	58.2	141652	440829.4	3671721.5	18.4
140640	440719.1	3670526.5	57.6	141704	440822.2	3671743.8	28.9
140652	440722.3	3670549.8	56.1	141716	440817.8	3671766.8	31.7
140704	440720.7	3670573.2	54.9	141728	440820.2	3671789.8	44.5

Survey Line SL03
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 15:40:24 to 16:12:37 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
154022	440898.7	3669414.5	48.0	155057	440673.5	3670612.0	58.5
154034	440895.5	3669428.2	48.6	155109	440674.7	3670638.2	58.9
154046	440894.2	3669442.8	49.1	155121	440676.1	3670664.5	58.1
154058	440893.1	3669457.0	48.0	155133	440677.8	3670691.0	58.5
154110	440890.4	3669471.0	48.3	155145	440679.8	3670717.8	57.7
154122	440886.3	3669484.5	51.7	155157	440682.7	3670744.0	57.8
154134	440880.6	3669497.8	47.9	155209	440685.5	3670770.2	58.1
154146	440874.1	3669511.0	45.0	155221	440689.7	3670796.2	57.8
154158	440867.9	3669524.0	45.1	155233	440693.8	3670822.2	55.2
154210	440862.0	3669538.0	41.1	155245	440697.0	3670848.5	55.6
154222	440856.0	3669553.5	40.5	155257	440700.7	3670874.8	51.9
154234	440850.7	3669569.0	40.8	155309	440703.8	3670901.2	51.0
154246	440846.4	3669585.5	39.7	155321	440707.3	3670927.5	50.3
154258	440839.3	3669608.8	38.7	155333	440711.0	3670953.8	49.1
154310	440831.0	3669633.5	38.2	155345	440714.6	3670980.0	52.9
154322	440823.6	3669659.0	36.1	155357	440716.9	3671006.8	54.0
154334	440817.7	3669684.5	35.0	155409	440718.3	3671033.0	54.2
154346	440812.8	3669710.0	38.7	155421	440718.6	3671060.0	54.0
154358	440806.7	3669735.5	47.8	155433	440719.6	3671086.5	52.5
154410	440797.9	3669760.2	47.7	155445	440721.8	3671113.0	53.5
154422	440788.0	3669784.5	49.9	155457	440724.4	3671139.0	49.6
154434	440779.3	3669808.8	59.8	155509	440727.4	3671164.8	52.8
154446	440771.8	3669833.5	62.2	155521	440730.8	3671191.0	51.1
154458	440763.8	3669859.0	63.2	155533	440734.8	3671216.5	45.8
154510	440756.4	3669883.8	62.6	155545	440739.0	3671242.5	49.8
154522	440748.8	3669909.0	63.7	155557	440743.1	3671268.5	51.1
154534	440741.3	3669933.5	63.7	155609	440746.4	3671294.5	47.8
154546	440733.5	3669958.2	63.5	155621	440748.8	3671320.5	45.6
154558	440725.5	3669982.5	63.7	155633	440750.4	3671346.8	46.2
154610	440717.2	3670007.5	62.0	155645	440751.4	3671373.0	48.6
154622	440708.5	3670032.0	63.7	155657	440752.5	3671399.5	46.1
154638	440695.5	3670065.5	65.4	155709	440754.3	3671426.0	46.6
154650	440685.9	3670089.5	62.7	155721	440755.7	3671452.2	45.3
154704	440674.3	3670117.8	62.5	155733	440756.5	3671479.0	44.6
154721	440659.7	3670150.2	62.2	155745	440757.1	3671505.5	45.5
154733	440649.5	3670174.0	63.4	155757	440758.3	3671532.0	43.8
154745	440641.3	3670198.2	62.8	155809	440760.8	3671558.5	44.1
154757	440635.9	3670224.5	62.3	155821	440764.5	3671585.0	40.5
154809	440631.1	3670250.0	61.9	155833	440768.2	3671611.0	28.2
154821	440638.2	3670274.5	61.3	155845	440771.3	3671637.2	23.4
154833	440647.8	3670298.2	60.9	155857	440773.8	3671663.5	18.7
154845	440652.8	3670323.8	59.8	155909	440776.6	3671689.8	17.9
154857	440657.0	3670349.8	59.8	155921	440779.5	3671716.0	22.3
154909	440659.3	3670376.0	59.7	155933	440782.6	3671742.5	34.7
154921	440659.5	3670402.8	59.8	155945	440786.0	3671769.0	46.0
154933	440660.0	3670429.5	59.9	155957	440789.9	3671795.2	47.2
154945	440667.5	3670454.8	59.6	160009	440794.4	3671821.5	48.3
154957	440674.3	3670480.0	59.7	160021	440798.3	3671847.8	48.5
155009	440676.0	3670506.5	59.4	160033	440798.5	3671874.2	49.1
155021	440673.5	3670532.8	58.7	160045	440798.2	3671900.8	47.6
155033	440670.5	3670559.2	59.7	160057	440801.8	3671927.8	49.8
155045	440672.7	3670585.5	58.9	160109	440806.0	3671954.0	47.7

Survey Line SL03

L Lake

Savannah River Plant, South Carolina

Survey Direction: North
 Survey Date/Time: 20 June 1996, 15:40:24 to 16:12:37 (UTC)
 Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
160121	440807.3	3671980.5	44.2	160709	441002.6	3672718.5	39.3
160133	440808.0	3672007.0	40.5	160721	441012.0	3672743.8	37.5
160145	440809.3	3672032.8	39.3	160733	441023.6	3672768.0	34.3
160157	440811.8	3672060.0	38.3	160745	441037.7	3672791.0	28.5
160209	440815.8	3672086.8	38.4	160757	441053.9	3672812.5	26.7
160221	440823.2	3672112.0	38.0	160809	441072.1	3672832.5	27.7
160233	440828.7	3672138.0	37.0	160821	441091.7	3672851.2	21.9
160245	440833.6	3672164.5	36.4	160833	441111.8	3672869.5	17.5
160257	440837.4	3672191.0	34.7	160845	441132.0	3672887.2	26.7
160309	440840.7	3672217.2	33.5	160857	441152.3	3672905.5	18.5
160321	440844.3	3672244.0	31.3	160909	441172.5	3672923.8	10.6
160333	440848.8	3672270.0	30.8	160921	441194.3	3672939.5	10.6
160345	440850.5	3672296.5	28.8	160933	441214.4	3672957.5	14.1
160357	440849.1	3672323.2	23.4	160945	441235.6	3672974.2	13.2
160409	440851.3	3672349.0	23.3	160957	441258.8	3672988.0	13.8
160421	440865.4	3672371.5	23.8	161009	441281.6	3673001.8	19.4
160433	440878.1	3672395.0	24.2	161021	441303.3	3673017.5	30.7
160445	440886.3	3672420.2	24.9	161033	441326.1	3673032.0	32.4
160457	440894.3	3672445.8	24.2	161045	441349.0	3673046.0	32.1
160509	440903.8	3672471.0	26.2	161057	441371.4	3673060.5	—
160521	440911.5	3672496.5	25.9	161109	441394.8	3673074.0	31.7
160533	440917.7	3672522.2	28.2	161121	441417.4	3673088.2	30.7
160545	440924.7	3672548.0	32.9	161133	441439.4	3673103.5	29.6
160557	440935.1	3672572.5	34.2	161145	441460.7	3673120.5	28.9
160609	440946.9	3672596.8	35.6	161157	441482.8	3673135.8	30.6
160621	440957.8	3672621.5	37.9	161209	441505.2	3673150.5	25.3
160633	440968.0	3672646.2	40.5	161221	441525.9	3673167.5	21.6
160645	440980.3	3672670.0	40.1	161233	441545.6	3673186.0	24.6
160657	440991.9	3672694.2	40.1				

Survey Line SL04
L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 20 June 1996, 16:18:17 to 17:00:20 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
161816	441524.3	3673295.2	21.4	162840	440845.1	3672535.2	15.4
161828	441511.6	3673291.8	21.0	162852	440842.0	3672514.0	15.6
161840	441494.4	3673284.0	20.0	162904	440839.6	3672492.5	17.6
161852	441475.4	3673275.8	—	162916	440836.0	3672471.0	17.8
161904	441456.1	3673266.8	16.7	162928	440830.4	3672450.5	17.9
161916	441438.0	3673255.5	14.9	162940	440823.0	3672430.5	13.7
161928	441418.8	3673245.8	10.9	162952	440815.1	3672410.8	18.8
161940	441401.0	3673234.2	14.9	163004	440808.9	3672390.0	19.6
161952	441383.9	3673220.8	17.7	163016	440804.3	3672369.0	20.0
162004	441366.0	3673208.5	19.8	163028	440798.8	3672348.0	20.8
162016	441347.1	3673197.5	20.1	163040	440792.7	3672327.2	22.1
162028	441328.3	3673186.0	20.0	163052	440786.3	3672306.5	23.7
162040	441310.2	3673173.8	20.3	163104	440779.9	3672285.8	25.6
162052	441292.4	3673161.2	21.8	163116	440773.9	3672265.2	26.7
162104	441273.9	3673149.2	23.3	163128	440771.3	3672244.0	29.6
162116	441256.7	3673137.5	24.1	163140	440772.2	3672222.5	32.5
162128	441239.1	3673125.5	24.8	163152	440769.6	3672201.8	37.6
162140	441221.5	3673113.8	24.1	163204	440761.3	3672183.0	39.2
162152	441204.1	3673101.5	33.5	163216	440750.0	3672166.0	39.0
162204	441187.5	3673089.0	34.9	163228	440738.7	3672149.5	37.1
162216	441171.0	3673075.5	35.5	163240	440729.2	3672131.0	36.0
162228	441154.4	3673062.2	35.7	163252	440721.2	3672112.5	33.8
162240	441137.1	3673049.8	36.4	163304	440713.7	3672093.0	33.2
162252	441119.6	3673037.8	38.2	163316	440706.5	3672073.0	34.3
162304	441101.8	3673026.0	35.4	163328	440698.9	3672053.0	35.6
162316	441083.6	3673015.2	26.9	163340	440691.1	3672033.0	38.1
162328	441064.6	3673005.2	29.8	163352	440682.1	3672014.0	40.9
162340	441045.3	3672996.0	30.6	163404	440672.3	3671995.5	42.1
162352	441025.7	3672987.0	31.1	163416	440661.2	3671977.8	42.0
162404	441009.4	3672974.8	34.5	163428	440655.6	3671958.5	41.5
162416	441002.2	3672955.2	36.0	163440	440652.8	3671938.2	41.1
162428	440994.9	3672934.5	34.9	163452	440650.8	3671917.5	43.6
162440	440987.7	3672914.0	31.1	163504	440650.4	3671896.8	42.3
162452	440984.4	3672892.5	35.4	163516	440650.2	3671875.5	42.9
162504	440982.7	3672870.5	36.4	163528	440650.8	3671854.0	44.8
162516	440981.3	3672848.5	38.6	163540	440654.1	3671833.5	47.5
162528	440980.3	3672827.0	40.3	163552	440652.1	3671812.5	48.8
162540	440979.6	3672805.5	41.1	163604	440647.2	3671792.0	49.0
162552	440977.8	3672784.5	36.9	163616	440642.7	3671771.2	49.8
162604	440967.0	3672767.2	35.8	163628	440639.4	3671750.2	50.0
162616	440954.4	3672750.5	35.2	163640	440635.6	3671729.0	49.4
162628	440942.1	3672733.5	35.2	163652	440629.4	3671709.2	50.3
162640	440926.7	3672719.2	29.6	163704	440626.7	3671688.8	51.0
162652	440910.4	3672706.2	25.8	163716	440627.1	3671667.0	50.8
162704	440894.6	3672692.8	21.6	163728	440625.5	3671645.5	49.9
162716	440883.5	3672676.2	18.2	163740	440622.5	3671624.5	51.2
162728	440878.3	3672656.0	16.6	163752	440620.3	3671603.0	50.5
162740	440873.2	3672636.0	14.6	163804	440619.0	3671581.5	51.2
162752	440865.3	3672616.8	12.2	163816	440617.6	3671560.0	51.3
162804	440857.5	3672597.5	12.3	163828	440616.3	3671538.2	51.3
162816	440852.8	3672577.0	12.7	163840	440615.0	3671517.0	52.3
162828	440848.9	3672556.2	14.2	163852	440614.0	3671495.2	52.5

Survey Line SL04
L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 20 June 1996, 16:18:17 to 17:00:20 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
163904	440612.3	3671474.0	52.1	164916	440528.4	3670408.0	58.3
163916	440609.8	3671452.2	52.4	164928	440525.8	3670387.0	58.7
163928	440606.2	3671432.0	52.9	164940	440522.9	3670366.0	58.5
163940	440602.9	3671411.5	52.7	164952	440519.7	3670345.0	56.9
163952	440599.8	3671391.0	52.4	165004	440515.8	3670324.2	—
164004	440595.0	3671370.0	53.2	165016	440511.9	3670303.0	54.0
164016	440589.3	3671350.0	37.1	165028	440507.9	3670282.0	47.2
164028	440584.7	3671329.0	28.0	165040	440503.7	3670261.0	46.4
164040	440580.2	3671308.5	22.3	165052	440499.4	3670239.8	43.4
164052	440574.1	3671288.2	22.8	165104	440494.8	3670218.5	41.7
164104	440567.6	3671267.8	24.0	165116	440492.8	3670198.0	41.8
164116	440561.9	3671247.2	26.7	165128	440496.9	3670176.5	38.9
164128	440557.4	3671226.5	30.3	165140	440500.8	3670155.0	33.4
164140	440554.2	3671205.5	33.4	165152	440509.0	3670135.0	30.8
164152	440551.8	3671184.5	38.4	165204	440517.2	3670115.0	30.5
164204	440550.7	3671162.5	41.4	165216	440524.6	3670094.8	30.2
164216	440549.8	3671141.0	45.4	165228	440531.8	3670074.2	27.8
164228	440549.6	3671119.2	48.0	165240	440538.7	3670053.2	24.6
164240	440549.3	3671097.8	49.8	165252	440544.5	3670032.2	21.0
164252	440549.9	3671077.0	49.2	165304	440549.7	3670010.8	21.2
164304	440549.7	3671056.0	45.9	165316	440554.3	3669989.0	21.6
164316	440549.2	3671034.8	43.2	165328	440559.4	3669968.2	20.8
164328	440548.1	3671014.0	44.6	165340	440565.2	3669947.0	18.8
164340	440547.4	3670993.2	44.2	165352	440572.7	3669925.8	16.9
164352	440546.7	3670972.5	44.1	165404	440578.9	3669904.8	15.6
164404	440546.3	3670951.5	43.3	165416	440582.8	3669883.5	13.2
164416	440545.7	3670930.5	38.9	165428	440588.5	3669863.0	9.5
164428	440545.3	3670909.2	39.8	165440	440594.1	3669842.5	10.0
164440	440544.9	3670888.0	38.7	165452	440594.1	3669821.8	10.7
164452	440545.1	3670867.2	38.1	165504	440593.3	3669801.0	7.4
164504	440545.4	3670846.0	37.5	165516	440597.1	3669781.0	6.0
164516	440545.8	3670825.0	42.8	165528	440597.4	3669761.5	10.8
164528	440548.3	3670803.5	46.5	165540	440607.2	3669745.5	11.8
164540	440551.0	3670782.5	46.6	165552	440622.3	3669731.5	6.5
164552	440554.6	3670761.0	45.2	165604	440637.4	3669716.8	15.1
164604	440553.8	3670740.2	44.1	165616	440651.0	3669700.5	14.8
164616	440555.7	3670719.5	45.2	165628	440660.9	3669682.2	17.9
164628	440560.8	3670699.0	47.3	165640	440666.9	3669662.5	19.3
164640	440565.3	3670678.2	52.9	165652	440673.3	3669643.0	21.2
164652	440565.9	3670657.5	53.0	165704	440680.4	3669623.5	22.6
164704	440563.8	3670636.8	49.0	165716	440687.7	3669604.0	21.3
164716	440562.3	3670616.0	49.5	165728	440694.2	3669584.5	23.8
164728	440561.1	3670595.0	50.0	165740	440699.3	3669564.5	20.8
164740	440559.4	3670574.0	51.3	165752	440702.8	3669544.2	22.5
164752	440556.5	3670553.5	53.1	165804	440706.0	3669523.8	27.9
164804	440552.0	3670532.8	52.3	165816	440709.5	3669503.0	28.8
164816	440546.4	3670512.5	53.5	165828	440714.1	3669482.8	28.8
164828	440541.8	3670492.0	54.8	165840	440720.6	3669463.0	29.3
164840	440537.3	3670471.2	56.4	165852	440729.4	3669444.8	29.0
164852	440533.8	3670450.5	—	165904	440741.6	3669428.0	29.3
164904	440530.8	3670429.5	58.5				

Survey Line SL04
 L Lake
 Savannah River Plant, South Carolina

Survey Direction: South
 Survey Date/Time: 20 June 1996, 16:18:17 to 17:00:20 (UTC)
 Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
165916	440756.1	3669413.0	—	165952	440781.4	3669358.0	16.7
165928	440767.7	3669396.0	27.5	170004	440786.3	3669338.5	16.1
165940	440776.3	3669377.5	24.9	170016	440792.0	3669318.8	12.0

Survey Line SL05

L Lake

Savannah River Plant, South Carolina

Survey Direction: North

Survey Date/Time: 20 June 1996, 17:05:13 to 17:47:44 (UTC)

Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
170508	440715.3	3669368.2	28.4	171544	440451.1	3670398.5	47.0
170520	440711.8	3669380.5	28.1	171556	440449.3	3670420.0	48.6
170532	440706.5	3669393.5	27.2	171608	440448.8	3670441.5	13.6
170544	440700.4	3669408.5	26.1	171620	440451.3	3670462.8	52.0
170556	440696.3	3669426.5	25.5	171632	440454.9	3670484.0	48.9
170608	440690.9	3669446.8	26.2	171644	440458.7	3670505.0	44.1
170620	440682.9	3669467.0	26.4	171656	440462.7	3670526.5	41.8
170632	440673.7	3669486.5	26.3	171708	440468.6	3670547.2	39.1
170644	440663.4	3669505.5	24.5	171720	440474.3	3670568.2	37.9
170656	440655.3	3669526.0	21.8	171732	440477.4	3670589.5	36.0
170708	440648.2	3669546.5	19.0	171744	440478.6	3670611.0	35.8
170720	440641.0	3669567.2	17.3	171756	440479.8	3670632.5	35.4
170732	440635.1	3669588.2	17.8	171808	440480.5	3670654.0	33.0
170744	440631.5	3669610.0	17.3	171820	440481.1	3670675.5	34.9
170756	440627.1	3669631.5	16.3	171832	440481.3	3670697.0	34.2
170808	440622.9	3669653.2	—	171844	440481.9	3670718.5	32.7
170820	440621.2	3669675.0	13.3	171856	440483.4	3670740.0	31.2
170832	440621.3	3669696.5	14.4	171908	440485.8	3670761.5	31.7
170844	440623.2	3669718.0	—	171920	440489.1	3670783.0	37.1
170856	440624.3	3669739.8	13.3	171932	440492.3	3670804.5	39.7
170908	440629.2	3669760.0	10.7	171944	440495.3	3670826.0	37.8
170920	440630.8	3669781.5	10.0	171956	440498.2	3670847.5	33.4
170932	440632.5	3669802.5	9.8	172008	440500.9	3670869.5	30.0
170944	440635.0	3669824.0	14.7	172020	440503.8	3670891.2	30.6
170956	440637.1	3669845.2	17.4	172032	440506.4	3670913.0	36.7
171008	440634.7	3669866.0	21.6	172044	440508.4	3670934.5	34.9
171020	440626.1	3669884.8	18.5	172056	440510.6	3670956.0	39.8
171032	440617.7	3669904.0	16.0	172108	440512.8	3670978.0	38.7
171044	440606.5	3669922.0	16.3	172120	440515.7	3670999.0	39.8
171056	440594.2	3669939.5	23.8	172132	440518.1	3671020.5	39.3
171108	440580.2	3669955.2	19.7	172144	440519.8	3671042.0	40.3
171120	440566.2	3669971.0	19.3	172156	440520.7	3671063.5	43.8
171132	440553.2	3669988.0	22.0	172208	440520.3	3671085.0	47.9
171144	440540.2	3670004.8	20.9	172220	440518.3	3671106.5	47.0
171156	440527.0	3670021.2	20.1	172232	440517.4	3671128.0	45.8
171208	440513.5	3670037.5	22.0	172244	440518.1	3671149.5	41.9
171220	440502.9	3670055.8	20.3	172256	440520.2	3671171.0	37.0
171232	440494.0	3670074.8	20.8	172308	440525.2	3671191.8	28.9
171244	440483.6	3670092.5	20.7	172320	440528.5	3671213.0	26.1
171256	440470.3	3670109.0	19.2	172332	440530.6	3671234.5	23.0
171308	440461.7	3670127.5	19.9	172344	440532.8	3671256.0	21.4
171320	440458.1	3670148.5	29.0	172356	440534.8	3671277.5	19.7
171332	440455.6	3670170.0	34.1	172408	440536.3	3671299.5	18.4
171344	440451.3	3670191.0	32.9	172420	440537.3	3671321.0	18.4
171356	440444.6	3670210.5	41.4	172432	440538.8	3671343.0	20.6
171408	440435.9	3670229.8	43.7	172444	440540.3	3671365.2	31.5
171420	440435.1	3670250.5	44.1	172456	440542.8	3671387.0	41.6
171432	440438.7	3670271.8	45.3	172508	440543.7	3671408.0	47.9
171444	440443.9	3670292.5	44.2	172520	440545.8	3671430.0	50.1
171456	440448.8	3670313.5	47.4	172532	440550.2	3671452.0	—
171508	440452.3	3670334.8	46.5	172544	440553.4	3671473.8	51.4
171520	440453.8	3670356.0	—	172556	440555.9	3671495.0	50.7
171532	440453.1	3670377.5	46.9	172608	440559.0	3671516.0	51.0

Survey Line SL05
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 17:05:13 to 17:47:44 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
172620	440561.4	3671537.5	50.4	173636	440798.4	3672616.2	8.5
172632	440563.5	3671560.0	50.5	173648	440814.8	3672631.0	9.4
172644	440565.0	3671581.2	49.8	173700	440830.5	3672646.5	10.9
172656	440566.9	3671603.0	50.1	173712	440844.6	3672664.0	11.6
172708	440569.5	3671625.0	49.5	173724	440857.4	3672682.0	18.3
172720	440572.6	3671646.8	47.4	173736	440867.8	3672701.5	21.8
172732	440577.2	3671668.5	46.7	173748	440875.9	3672722.5	21.3
172744	440583.4	3671689.0	48.9	173800	440883.7	3672743.5	25.1
172756	440588.0	3671711.0	48.7	173812	440895.5	3672762.2	27.9
172808	440590.7	3671733.0	47.3	173824	440906.8	3672781.2	30.3
172820	440592.0	3671755.0	46.7	173836	440918.6	3672800.2	31.1
172832	440592.4	3671777.0	45.9	173848	440930.1	3672819.8	32.0
172844	440592.2	3671799.0	45.0	173900	440941.7	3672839.2	32.1
172856	440591.8	3671821.0	44.8	173912	440953.4	3672858.8	36.7
172908	440593.5	3671842.8	45.4	173924	440965.0	3672878.2	34.2
172920	440596.3	3671864.8	46.3	173936	440977.2	3672897.5	31.5
172932	440598.6	3671886.8	46.0	173948	440989.7	3672916.8	37.0
172944	440600.3	3671908.8	46.7	174000	441001.3	3672936.0	36.3
172956	440602.0	3671931.0	46.5	174012	441013.4	3672955.5	36.9
173008	440604.0	3671952.8	46.2	174024	441025.8	3672974.5	32.2
173020	440605.8	3671974.8	44.2	174036	441038.0	3672993.8	30.4
173032	440607.4	3671996.8	43.7	174048	441049.7	3673013.5	31.8
173044	440608.8	3672019.0	45.0	174100	441061.4	3673033.0	29.1
173100	440610.7	3672048.5	42.6	174112	441073.1	3673052.5	28.0
173112	440611.9	3672070.5	42.5	174124	441084.9	3673071.8	29.9
173124	440613.1	3672092.8	41.8	174136	441096.7	3673091.0	32.3
173136	440615.1	3672115.0	42.0	174148	441108.2	3673110.8	32.2
173148	440619.0	3672137.2	41.1	174200	441120.1	3673129.8	31.6
173200	440625.2	3672158.8	39.9	174212	441131.8	3673149.8	29.5
173212	440630.1	3672180.5	39.4	174224	441143.2	3673169.2	26.1
173224	440631.4	3672202.5	37.7	174236	441155.0	3673189.0	27.5
173236	440628.8	3672224.0	35.9	174248	441166.3	3673208.5	24.2
173248	440626.7	3672246.0	32.7	174300	441177.1	3673228.5	24.9
173300	440629.3	3672267.5	29.7	174312	441187.7	3673248.5	19.5
173312	440638.2	3672287.2	26.0	174324	441198.6	3673268.0	17.7
173324	440647.6	3672307.2	21.9	174336	441209.7	3673288.0	15.8
173336	440654.3	3672328.2	20.1	174348	441220.8	3673307.8	14.6
173348	440657.6	3672350.0	18.1	174400	441229.8	3673327.5	12.0
173400	440660.6	3672371.8	10.8	174412	441232.9	3673349.0	—
173412	440663.3	3672393.8	15.9	174424	441235.0	3673371.2	16.8
173424	440671.3	3672413.8	13.6	174436	441236.9	3673393.5	16.7
173436	440683.6	3672432.0	13.9	174448	441238.7	3673416.0	16.3
173448	440693.6	3672452.0	12.2	174500	441239.1	3673438.0	16.3
173500	440700.3	3672472.8	12.8	174512	441240.1	3673460.0	15.2
173512	440706.9	3672494.2	—	174524	441241.7	3673482.5	13.3
173524	440719.3	3672512.2	12.9	174536	441242.2	3673504.0	11.5
173536	440734.8	3672527.0	12.5	174548	441243.8	3673526.0	10.9
173548	440750.5	3672542.5	11.0	174600	441243.9	3673545.5	10.6
173600	440763.5	3672560.0	10.3	174612	441244.2	3673563.5	13.1
173612	440775.2	3672578.5	9.6	174624	441245.1	3673583.0	15.1
173624	440785.5	3672598.2	8.6				

Survey Line SL05

L Lake

Savannah River Plant, South Carolina

Survey Direction: North

Survey Date/Time: 20 June 1996, 17:05:13 to 17:47:44 (UTC)

Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
174636	441247.8	3673602.2	14.9	174712	441259.4	3673660.8	14.7
174648	441251.3	3673621.5	15.4	174724	441263.8	3673679.8	14.7
174700	441255.1	3673641.2	14.5	174736	441267.4	3673698.5	13.8

Survey Line SL06
L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 20 June 1996, 17:50:26 to 18:39:31 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
175030	441243.2	3673749.8	8.1	180054	440952.1	3673064.0	30.3
175042	441234.0	3673736.0	10.3	180106	440943.4	3673051.0	29.5
175054	441224.3	3673723.2	12.0	180118	440936.0	3673037.2	24.1
175106	441216.7	3673709.5	13.5	180130	440928.7	3673022.5	19.4
175118	441209.4	3673695.5	9.4	180142	440920.3	3673008.5	21.2
175130	441201.8	3673682.2	11.4	180154	440912.5	3672994.0	25.4
175142	441194.8	3673668.0	9.6	180206	440905.6	3672979.2	27.0
175154	441189.4	3673654.0	9.4	180218	440898.2	3672966.0	27.2
175206	441187.4	3673640.5	9.4	180230	440891.8	3672950.5	27.6
175218	441183.8	3673627.2	8.7	180242	440885.9	3672936.0	28.3
175230	441180.3	3673613.0	9.6	180254	440880.9	3672921.0	28.7
175242	441179.2	3673597.5	9.3	180306	440876.6	3672905.5	29.7
175254	441179.8	3673582.0	8.7	180318	440871.6	3672889.5	26.8
175306	441180.9	3673566.8	11.5	180330	440865.0	3672874.0	24.4
175318	441181.6	3673550.8	10.0	180342	440857.0	3672858.5	18.4
175330	441181.4	3673535.5	13.5	180354	440849.0	3672843.5	15.9
175342	441182.0	3673519.2	10.5	180406	440841.7	3672829.0	10.3
175354	441182.8	3673503.2	10.0	180418	440835.6	3672813.5	8.4
175406	441180.7	3673487.8	9.2	180430	440831.2	3672797.8	7.8
175418	441176.9	3673473.0	11.6	180442	440827.0	3672782.0	8.5
175430	441174.0	3673458.0	18.4	180454	440822.7	3672767.5	8.4
175442	441172.3	3673442.8	19.5	180506	440817.2	3672753.0	7.4
175454	441164.9	3673429.2	20.6	180518	440811.3	3672739.2	6.1
175506	441154.8	3673417.2	18.8	180530	440807.1	3672724.8	10.4
175518	441145.1	3673406.0	18.7	180542	440804.8	3672709.5	6.9
175530	441135.5	3673396.2	18.6	180554	440803.4	3672693.5	16.2
175542	441127.8	3673387.0	19.2	180606	440801.3	3672678.2	10.0
175554	441121.0	3673377.2	19.5	180618	440794.2	3672663.5	9.2
175606	441114.9	3673367.0	18.3	180630	440788.3	3672649.5	7.9
175618	441107.8	3673357.5	20.4	180642	440784.4	3672635.5	7.9
175630	441099.4	3673348.8	21.5	180654	440783.8	3672621.0	8.2
175642	441091.3	3673341.5	20.6	180706	440785.0	3672606.0	8.7
175654	441091.3	3673334.2	19.9	180718	440784.6	3672590.8	9.8
175706	441078.3	3673323.0	19.1	180730	440781.1	3672576.0	10.2
175718	441072.2	3673311.5	13.9	180742	440774.7	3672562.0	10.9
175730	441065.3	3673299.2	12.7	180754	440766.9	3672548.0	11.0
175742	441057.6	3673286.5	14.1	180806	440758.0	3672535.5	12.5
175754	441051.4	3673272.5	17.5	180818	440748.3	3672522.8	12.7
175806	441044.6	3673258.2	19.6	180830	440737.5	3672511.5	12.5
175818	441036.1	3673245.2	20.6	180842	440725.5	3672502.0	12.7
175830	441028.8	3673231.8	17.0	180854	440712.2	3672494.5	13.1
175842	441022.8	3673217.5	13.6	180906	440699.0	3672487.0	—
175854	441016.6	3673203.5	10.6	180918	440687.4	3672476.5	13.0
175906	441010.2	3673190.0	13.3	180930	440678.0	3672465.0	13.2
175918	441005.2	3673176.2	19.0	180942	440670.6	3672452.0	14.7
175930	441000.4	3673162.0	21.7	180954	440663.0	3672439.0	14.7
175942	440993.8	3673148.2	23.0	181006	440654.1	3672426.5	14.7
175954	440987.6	3673135.0	24.1	181018	440643.4	3672416.0	15.3
180006	440981.5	3673120.0	25.6	181030	440634.4	3672404.0	16.3
180018	440976.1	3673105.0	26.9	181042	440624.7	3672391.5	15.8
180030	440968.0	3673091.5	27.8	181054	440613.2	3672380.5	16.6
180042	440960.2	3673078.0	29.0	181106	440600.3	3672370.5	15.8

Survey Line SL06
L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 20 June 1996, 17:50:26 to 18:39:31 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
181118	440587.1	3672362.5	18.8	182154	440435.7	3671613.2	22.4
181130	440573.6	3672354.5	19.0	182206	440439.7	3671596.5	25.8
181142	440559.8	3672346.8	19.0	182218	440443.4	3671580.0	26.5
181154	440546.1	3672339.2	19.6	182230	440447.0	3671562.8	28.9
181206	440533.0	3672331.8	21.1	182242	440450.8	3671546.5	22.8
181218	440519.6	3672324.5	22.2	182254	440454.8	3671530.2	22.1
181230	440506.4	3672316.2	22.3	182306	440458.8	3671514.0	22.0
181242	440493.4	3672308.8	22.9	182318	440463.0	3671498.2	20.3
181254	440481.4	3672300.0	20.5	182330	440467.4	3671482.5	19.2
181306	440473.6	3672288.2	17.6	182342	440470.4	3671466.0	19.6
181318	440467.3	3672274.2	16.5	182354	440472.4	3671449.0	17.3
181330	440462.0	3672260.2	14.8	182406	440475.1	3671433.0	16.8
181342	440456.8	3672245.5	12.7	182418	440477.3	3671416.5	15.9
181354	440451.5	3672230.8	15.2	182430	440479.1	3671399.8	14.9
181406	440446.1	3672216.0	16.1	182442	440479.6	3671383.0	13.4
181418	440440.6	3672201.2	17.1	182454	440480.1	3671365.0	12.5
181430	440434.4	3672187.0	18.6	182506	440480.6	3671348.0	11.6
181442	440428.0	3672172.2	20.7	182518	440480.8	3671330.0	11.2
181454	440420.9	3672158.2	22.6	182530	440480.1	3671312.5	11.1
181506	440413.5	3672143.2	24.0	182542	440480.5	3671295.0	12.1
181518	440405.5	3672129.0	25.6	182554	440481.2	3671277.2	12.5
181530	440398.4	3672114.8	28.2	182606	440481.9	3671259.5	12.4
181542	440392.8	3672100.5	28.3	182618	440483.0	3671243.0	14.0
181554	440387.6	3672085.5	28.5	182630	440483.9	3671224.8	16.2
181606	440383.0	3672071.0	28.0	182642	440484.9	3671207.5	19.4
181618	440377.9	3672056.5	27.1	182654	440485.3	3671190.2	24.8
181630	440372.0	3672041.5	26.0	182706	440485.8	3671172.8	33.8
181642	440366.6	3672027.0	24.0	182718	440486.4	3671155.0	37.8
181654	440361.2	3672011.8	22.0	182730	440488.1	3671138.5	41.0
181706	440355.9	3671996.0	19.1	182742	440489.6	3671121.0	41.5
181718	440352.4	3671980.0	15.3	182754	440490.8	3671104.5	41.1
181730	440351.8	3671963.5	11.6	182806	440488.6	3671085.5	38.1
181742	440355.9	3671947.0	15.9	182818	440487.5	3671069.5	33.0
181754	440360.5	3671930.5	16.9	182830	440485.8	3671051.2	32.4
181806	440365.4	3671914.0	18.3	182842	440487.4	3671035.5	32.5
181818	440370.3	3671898.0	19.3	182854	440489.5	3671017.5	32.8
181830	440375.4	3671882.0	20.0	182906	440489.9	3671000.5	32.9
181842	440380.9	3671865.5	21.9	182918	440491.4	3670983.5	35.3
181854	440385.6	3671849.2	23.1	182930	440493.2	3670967.2	35.2
181906	440389.8	3671833.5	23.5	182942	440494.3	3670949.5	36.3
181918	440393.7	3671817.8	23.5	182954	440495.7	3670933.0	39.1
181930	440396.6	3671801.8	22.6	183006	440495.8	3670916.2	35.2
181942	440399.4	3671786.0	20.9	183018	440496.3	3670899.5	29.2
181954	440402.1	3671770.8	19.9	183030	440497.1	3670882.5	30.6
182006	440405.9	3671756.0	19.0	183042	440497.8	3670865.0	32.3
182018	440409.6	3671740.5	19.5	183054	440496.3	3670848.2	35.9
182030	440413.2	3671725.0	19.2	183106	440493.0	3670832.0	37.3
182042	440416.5	3671709.5	18.2	183118	440489.4	3670815.5	37.4
182054	440419.8	3671694.0	18.2	183130	440485.3	3670799.5	35.4
182106	440422.5	3671677.5	16.6	183142	440480.7	3670783.2	30.1
182118	440425.1	3671661.5	17.8	183154	440476.5	3670767.0	28.6
182130	440428.1	3671645.5	20.7	183206	440473.0	3670751.0	28.9
182142	440431.7	3671629.8	20.9	183218	440470.1	3670735.0	30.5

Survey Line SL06
 L Lake
 Savannah River Plant, South Carolina

Survey Direction: South
 Survey Date/Time: 20 June 1996, 17:50:26 to 18:39:31 (UTC)
 Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
183230	440467.9	3670718.8	30.1	183606	440425.9	3670419.2	41.4
183242	440466.8	3670703.0	30.0	183618	440426.5	3670402.0	42.9
183254	440465.3	3670687.2	30.8	183630	440426.4	3670385.0	36.5
183306	440462.0	3670668.5	29.9	183642	440427.0	3670367.0	30.5
183318	440461.1	3670651.2	29.5	183654	440427.3	3670349.5	27.2
183330	440461.2	3670634.2	28.1	183706	440427.7	3670332.0	26.0
183342	440459.8	3670617.0	29.0	183718	440428.1	3670314.5	29.1
183354	440456.9	3670600.0	28.9	183730	440427.7	3670297.2	36.4
183406	440452.4	3670583.5	29.5	183742	440427.8	3670280.0	43.0
183418	440445.5	3670567.5	29.7	183754	440428.0	3670263.0	42.6
183430	440438.7	3670554.2	30.2	183806	440428.2	3670247.0	41.8
183442	440431.3	3670538.8	31.9	183818	440428.6	3670230.8	40.9
183454	440425.9	3670522.2	33.3	183830	440428.8	3670213.8	36.5
183506	440423.3	3670505.5	37.6	183842	440428.3	3670197.8	33.4
183518	440423.2	3670489.2	40.8	183854	440429.3	3670181.0	31.4
183530	440424.3	3670471.5	43.3	183906	440430.4	3670164.5	29.2
183542	440423.2	3670454.8	45.2	183918	440431.0	3670147.5	22.4
183554	440424.5	3670436.5	44.8	183930	440435.9	3670125.0	17.5

Survey Line SL07
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 19:03:06 to 19:39:52 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
190307	440978.8	3669505.0	63.7	191343	440769.9	3670552.2	53.0
190319	440979.9	3669520.5	66.7	191355	440771.7	3670573.5	52.0
190331	440978.1	3669536.5	68.9	191407	440774.4	3670594.2	47.5
190343	440975.2	3669551.0	67.4	191419	440777.8	3670614.5	41.8
190355	440969.5	3669566.0	68.4	191431	440781.4	3670635.2	38.4
190407	440961.9	3669581.2	68.5	191443	440786.0	3670655.8	36.8
190419	440950.4	3669601.0	68.1	191455	440790.3	3670676.5	35.1
190431	440939.5	3669624.8	63.8	191507	440793.3	3670697.2	36.8
190443	440929.8	3669650.8	—	191519	440794.3	3670718.0	42.0
190455	440920.6	3669676.5	63.7	191531	440793.8	3670739.0	48.8
190507	440913.0	3669703.0	65.3	191543	440792.7	3670759.5	51.8
190519	440906.3	3669725.5	64.7	191555	440792.6	3670780.5	45.7
190531	440901.2	3669742.5	65.8	191607	440793.6	3670800.8	42.5
190543	440897.0	3669759.0	66.0	191619	440794.4	3670821.0	41.0
190555	440894.2	3669778.5	66.3	191631	440795.7	3670842.0	35.7
190607	440888.8	3669798.5	66.1	191643	440797.8	3670862.5	30.1
190619	440883.0	3669818.5	65.7	191655	440799.9	3670882.2	29.0
190631	440876.9	3669838.5	65.1	191707	440801.3	3670903.0	31.6
190643	440869.0	3669858.2	65.2	191719	440804.3	3670922.2	31.5
190655	440860.3	3669877.0	64.9	191731	440807.8	3670942.5	29.4
190707	440851.1	3669895.5	64.7	191743	440811.8	3670962.0	28.7
190719	440842.3	3669914.2	64.6	191755	440814.0	3670981.0	32.8
190731	440834.6	3669933.5	64.2	191807	440813.6	3671001.0	36.4
190743	440827.7	3669951.8	64.1	191819	440812.4	3671020.5	42.8
190755	440820.9	3669971.5	64.7	191831	440812.2	3671038.8	46.6
190807	440815.4	3669992.0	63.1	191843	440813.3	3671060.5	48.1
190819	440811.1	3670011.5	—	191855	440815.3	3671080.8	47.8
190831	440807.6	3670031.8	48.0	191907	440819.2	3671100.0	48.1
190843	440804.7	3670051.5	42.0	191919	440823.6	3671120.0	47.9
190855	440801.2	3670071.8	47.6	191931	440827.7	3671139.2	47.8
190907	440796.4	3670092.5	44.7	191943	440829.7	3671159.0	47.8
190919	440790.2	3670112.2	36.9	191955	440830.4	3671179.0	45.5
190931	440781.9	3670131.0	40.6	192007	440831.3	3671198.8	41.6
190943	440773.3	3670150.0	37.7	192019	440832.1	3671218.5	40.1
190955	440766.0	3670169.5	33.6	192031	440833.1	3671238.5	39.1
191007	440760.3	3670189.5	35.3	192043	440834.3	3671257.8	37.2
191019	440754.3	3670209.5	31.0	192055	440836.1	3671277.5	33.5
191031	440747.8	3670229.2	27.9	192107	440838.4	3671297.8	31.4
191043	440740.8	3670248.5	23.5	192119	440841.0	3671317.0	31.8
191055	440737.1	3670268.0	19.6	192131	440844.3	3671336.0	32.3
191107	440742.2	3670287.2	15.8	192143	440847.5	3671356.5	33.5
191119	440750.2	3670306.0	12.4	192155	440850.3	3671375.2	34.4
191131	440756.3	3670325.5	12.1	192207	440852.2	3671395.5	38.0
191143	440761.3	3670345.8	12.3	192219	440853.2	3671416.0	43.2
191155	440765.5	3670366.0	19.0	192231	440852.3	3671433.8	45.0
191207	440764.2	3670386.2	32.8	192243	440850.8	3671453.2	46.4
191219	440761.4	3670407.0	40.3	192255	440849.3	3671472.5	43.6
191231	440761.7	3670427.5	50.0	192307	440851.3	3671492.0	44.0
191243	440764.5	3670448.2	53.1	192319	440856.6	3671510.5	42.8
191255	440766.6	3670469.0	52.3	192331	440863.1	3671528.5	41.0
191307	440767.7	3670489.5	48.3	192343	440867.8	3671546.8	39.1
191319	440768.3	3670510.8	49.6	192355	440870.1	3671565.8	37.6
191331	440769.0	3670531.5	50.0	192407	440870.8	3671585.0	33.0

Survey Line SL07
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 19:03:06 to 19:39:52 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
192419	440871.2	3671604.2	26.7	193207	440968.3	3672327.0	38.2
192431	440870.9	3671622.8	21.1	193219	440979.8	3672342.8	43.3
192443	440869.8	3671642.0	16.5	193231	440986.6	3672360.0	45.3
192455	440869.7	3671661.0	11.8	193243	440991.4	3672379.0	43.6
192507	440872.6	3671679.0	10.0	193255	440998.4	3672397.0	41.7
192519	440876.9	3671698.8	8.4	193307	441005.2	3672415.2	42.8
192531	440881.1	3671717.0	7.1	193319	441012.3	3672434.0	42.5
192543	440884.9	3671736.5	11.6	193331	441020.3	3672451.8	41.6
192555	440888.0	3671755.2	23.0	193343	441029.3	3672469.0	42.0
192607	440889.6	3671774.5	29.9	193355	441039.0	3672485.5	42.1
192619	440891.4	3671793.2	20.4	193407	441050.4	3672501.0	40.9
192631	440892.3	3671812.5	15.3	193419	441059.1	3672517.0	36.9
192643	440893.3	3671831.5	17.8	193431	441063.6	3672535.0	33.7
192655	440893.9	3671850.2	19.2	193443	441065.2	3672554.2	28.4
192707	440894.6	3671869.5	22.3	193455	441067.4	3672573.5	21.6
192719	440895.3	3671888.0	32.3	193507	441069.3	3672592.0	17.3
192731	440895.8	3671907.0	37.5	193519	441070.8	3672611.0	12.6
192743	440896.7	3671925.5	43.4	193531	441070.3	3672630.0	11.1
192755	440896.9	3671944.2	44.7	193543	441068.0	3672648.8	10.4
192807	440897.9	3671963.0	45.4	193555	441066.2	3672667.5	9.9
192819	440899.6	3671982.2	45.4	193607	441064.5	3672686.0	9.6
192831	440902.4	3672000.5	13.8	193619	441061.0	3672704.0	11.0
192843	440904.3	3672019.0	46.3	193631	441054.3	3672722.0	12.1
192855	440905.6	3672038.2	46.0	193643	441051.6	3672740.5	12.7
192907	440907.5	3672057.5	46.0	193655	441057.8	3672756.8	12.5
192919	440909.0	3672076.8	46.2	193707	441062.8	3672771.2	11.7
192931	440911.3	3672096.0	45.5	193719	441068.3	3672784.0	11.5
192943	440914.3	3672114.5	45.7	193731	441075.8	3672795.5	16.1
192955	440917.7	3672133.8	45.4	193743	441083.4	3672806.5	15.9
193007	440922.0	3672151.5	45.6	193755	441092.2	3672817.0	18.7
193019	440926.8	3672170.2	45.1	193807	441101.8	3672827.8	17.3
193031	440930.0	3672189.0	44.3	193819	441111.9	3672838.0	12.0
193043	440931.5	3672207.8	42.6	193831	441121.3	3672849.0	8.2
193055	440931.8	3672227.0	40.1	193843	441130.9	3672859.2	11.9
193107	440932.1	3672246.0	38.3	193855	441141.1	3672868.5	20.6
193119	440932.6	3672265.0	38.0	193907	441151.6	3672879.0	24.1
193131	440932.6	3672284.0	37.8	193919	441164.4	3672888.2	17.8
193143	440942.0	3672299.2	37.6	193931	441177.3	3672898.5	8.4
193155	440955.1	3672313.0	37.0	193943	441188.4	3672910.8	5.8

Survey Line SL08

L Lake

Savannah River Plant, South Carolina

Survey Direction: South

Survey Date/Time: 20 June 1996, 19:52:09 to 20:34:33 (UTC)

Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
195210	441086.8	3672425.5	40.4	200246	440932.8	3671783.2	10.1
195222	441075.8	3672419.0	41.0	200258	440932.6	3671769.5	7.8
195234	441066.4	3672410.8	42.1	200310	440932.3	3671757.2	6.5
195246	441060.4	3672400.2	42.8	200322	440932.3	3671744.0	6.6
195258	441054.4	3672389.0	41.9	200334	440931.3	3671730.5	7.1
195310	441046.5	3672379.0	43.0	200346	440926.4	3671719.8	8.1
195322	441038.3	3672369.8	43.5	200358	440918.1	3671710.8	8.4
195334	441029.5	3672360.2	43.6	200410	440909.3	3671702.5	9.2
195346	441023.0	3672349.5	43.1	200422	440901.6	3671693.0	10.3
195358	441019.7	3672337.0	42.9	200434	440895.8	3671682.0	11.7
195410	441018.3	3672324.8	—	200446	440892.2	3671669.8	13.8
195422	441017.6	3672312.2	48.1	200458	440889.3	3671656.8	16.5
195434	441015.8	3672299.8	44.5	200510	440886.4	3671643.5	20.1
195446	441013.8	3672287.2	44.9	200522	440884.4	3671629.5	24.0
195458	441011.1	3672275.0	43.7	200534	440882.4	3671615.8	29.2
195510	441006.3	3672264.2	44.5	200546	440881.5	3671601.0	33.4
195522	440999.9	3672254.0	44.3	200558	440881.5	3671586.8	36.9
195534	440993.3	3672244.2	46.4	200610	440881.6	3671572.5	38.1
195546	440989.7	3672233.5	45.6	200622	440881.7	3671558.5	39.6
195558	440988.4	3672221.0	45.9	200634	440881.6	3671544.0	40.2
195610	440985.6	3672209.5	44.7	200646	440881.6	3671530.2	40.9
195622	440983.4	3672198.2	44.7	200658	440881.2	3671516.5	40.6
195634	440981.8	3672187.0	45.8	200710	440881.1	3671503.5	42.2
195646	440978.5	3672176.0	44.9	200722	440881.6	3671490.5	42.5
195658	440974.3	3672164.8	45.1	200734	440880.8	3671477.2	43.2
195710	440970.5	3672153.0	45.4	200746	440879.8	3671464.2	43.5
195722	440966.1	3672141.2	45.5	200758	440877.9	3671451.0	43.5
195734	440960.4	3672130.2	46.0	200810	440876.7	3671437.8	41.3
195746	440956.4	3672118.5	45.5	200822	440875.8	3671424.8	39.4
195758	440955.5	3672105.2	44.3	200834	440874.5	3671412.0	35.6
195810	440955.3	3672092.0	43.4	200846	440876.2	3671398.5	31.1
195822	440955.3	3672078.5	43.8	200858	440879.3	3671385.0	29.1
195834	440955.1	3672065.0	44.3	200910	440883.0	3671371.5	27.1
195846	440955.2	3672051.5	44.5	200922	440886.2	3671359.0	24.2
195858	440955.2	3672037.8	42.6	200934	440888.7	3671347.0	22.1
195910	440955.4	3672024.5	41.2	200946	440890.7	3671335.0	20.3
195922	440955.3	3672010.8	40.6	200958	440890.5	3671322.5	19.0
195934	440954.7	3671997.0	40.6	201010	440889.8	3671309.5	18.6
195946	440953.7	3671983.8	42.2	201022	440890.1	3671296.0	18.3
195958	440953.0	3671969.8	42.6	201034	440891.4	3671282.0	18.2
200010	440953.1	3671956.5	42.1	201046	440892.0	3671268.2	18.6
200022	440953.2	3671943.5	38.8	201058	440891.8	3671254.5	19.6
200034	440952.7	3671929.8	36.5	201110	440889.2	3671241.2	21.4
200046	440952.2	3671917.0	33.1	201122	440887.5	3671227.5	23.7
200058	440950.8	3671903.5	29.5	201134	440886.7	3671214.0	29.1
200110	440949.0	3671890.8	25.4	201146	440885.9	3671201.0	35.7
200122	440945.2	3671878.0	21.5	201158	440885.4	3671186.5	41.6
200134	440941.5	3671865.0	20.9	201210	440883.9	3671172.2	43.7
200146	440937.8	3671852.0	20.2	201222	440881.4	3671159.0	44.3
200158	440935.0	3671839.0	18.5	201234	440878.0	3671145.5	44.0
200210	440934.0	3671825.0	16.9	201246	440875.8	3671132.0	44.0
200222	440933.1	3671811.0	14.4	201258	440874.2	3671119.0	41.9
200234	440932.8	3671797.5	11.9	201310	440869.6	3671107.0	40.2

Survey Line SL08
L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 20 June 1996, 19:52:09 to 20:34:33 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
201322	440867.2	3671093.5	40.3	202322	440795.1	3670431.0	32.6
201334	440864.6	3671080.0	40.6	202334	440799.8	3670411.2	17.6
201346	440861.6	3671068.0	40.0	202346	440804.4	3670391.5	16.1
201358	440859.2	3671054.5	37.1	202358	440807.5	3670372.5	16.1
201410	440857.0	3671041.5	32.9	202410	440804.5	3670355.0	17.3
201422	440855.2	3671028.2	30.7	202422	440801.5	3670337.2	18.4
201434	440851.4	3671015.8	26.9	202434	440799.6	3670310.5	20.2
201446	440848.0	3671002.8	23.4	202446	440796.3	3670290.0	21.9
201458	440844.6	3670989.5	22.5	202458	440792.5	3670270.8	18.8
201510	440840.9	3670976.5	22.7	202510	440788.6	3670250.5	18.3
201522	440837.0	3670964.0	23.1	202522	440784.8	3670231.2	19.8
201534	440830.1	3670952.5	25.4	202534	440784.7	3670212.5	21.9
201546	440821.5	3670942.2	27.1	202546	440791.4	3670193.0	26.5
201558	440821.9	3670930.0	27.5	202558	440802.8	3670176.8	28.4
201610	440827.9	3670919.0	27.6	202610	440814.4	3670159.2	30.0
201622	440836.1	3670909.0	24.3	202622	440823.1	3670140.5	34.8
201634	440844.1	3670897.0	21.1	202634	440831.1	3670120.5	40.6
201646	440848.8	3670885.8	20.0	202646	440838.5	3670102.2	41.6
201658	440852.2	3670874.5	20.4	202658	440845.4	3670084.0	42.7
201710	440853.8	3670863.0	19.0	202710	440851.8	3670064.5	41.5
201722	440854.8	3670850.2	18.2	202722	440857.1	3670046.5	43.5
201734	440852.9	3670837.5	18.3	202734	440863.5	3670026.8	45.4
201746	440851.6	3670824.2	20.9	202746	440869.5	3670007.5	47.5
201758	440848.9	3670810.0	26.4	202758	440876.0	3669988.5	49.9
201810	440845.0	3670797.0	34.9	202810	440882.7	3669968.5	55.9
201822	440844.1	3670785.0	40.8	202822	440888.8	3669949.2	57.4
201834	440842.2	3670771.5	42.9	202834	440894.2	3669930.5	64.3
201846	440841.0	3670758.0	45.5	202846	440900.2	3669911.0	66.0
201858	440841.0	3670745.2	45.1	202858	440905.5	3669892.0	65.8
201910	440838.7	3670732.0	40.4	202910	440909.9	3669873.0	65.7
201922	440837.3	3670719.5	29.9	202922	440913.5	3669855.0	64.6
201934	440835.3	3670705.5	24.5	202934	440916.5	3669838.2	65.7
201946	440834.8	3670693.0	24.9	202946	440929.4	3669815.8	66.4
201958	440833.7	3670680.0	27.4	202958	440938.2	3669798.2	66.1
202010	440830.4	3670667.0	30.7	203010	440946.9	3669778.5	65.6
202022	440826.6	3670653.8	34.7	203022	440953.6	3669759.8	66.4
202034	440823.5	3670640.0	40.1	203034	440959.4	3669741.0	67.1
202046	440820.7	3670626.8	43.7	203046	440966.5	3669719.5	67.2
202058	440817.8	3670612.8	46.6	203058	440973.2	3669700.8	67.2
202110	440818.5	3670600.5	48.9	203110	440980.0	3669681.2	67.5
202122	440817.7	3670587.5	48.5	203122	440984.7	3669661.5	68.5
202134	440815.8	3670574.0	48.0	203134	440988.7	3669641.2	67.8
202146	440814.8	3670562.0	46.1	203146	440993.7	3669623.0	68.1
202158	440812.8	3670549.0	41.2	203158	440998.9	3669604.0	68.3
202210	440810.1	3670535.0	41.1	203210	441003.9	3669583.8	68.7
202222	440807.8	3670521.2	46.8	203222	441008.2	3669564.0	68.4
202234	440806.1	3670504.8	49.4	203234	441012.8	3669544.5	63.0
202246	440802.6	3670487.2	49.7	203246	441018.0	3669525.0	64.2
202258	440796.0	3670468.0	50.6	203258	441025.0	3669505.5	64.6
202310	440792.1	3670452.0	40.5	203310	441033.8	3669485.5	64.7

Survey Line SL08

L Lake

Savannah River Plant, South Carolina

Survey Direction: South

Survey Date/Time: 20 June 1996, 19:52:09 to 20:34:33 (UTC)

Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
203322	441036.9	3669470.0	69.4	203358	441059.3	3669411.2	50.7
203334	441043.7	3669449.5	68.9	203410	441066.5	3669394.5	43.3
203346	441051.3	3669430.2	57.9	203422	441071.9	3669385.5	36.2

Survey Line SL09
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 20:44:17 to 21:09:22 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
204416	441077.7	3669534.5	47.2	205440	440878.1	3670678.5	21.0
204428	441072.0	3669546.2	55.4	205452	440878.0	3670705.2	19.0
204440	441065.2	3669558.2	63.4	205504	440852.1	3670737.0	12.8
204452	441058.6	3669568.8	65.6	205516	440878.8	3670751.5	16.7
204504	441054.8	3669582.8	65.6	205528	440877.1	3670775.8	15.6
204516	441052.6	3669596.5	66.2	205540	440876.6	3670800.0	13.9
204528	441049.7	3669610.2	65.7	205552	440875.2	3670823.0	13.4
204540	441045.2	3669623.2	64.6	205604	440864.0	3670849.8	16.8
204552	441040.0	3669636.0	64.9	205616	440850.3	3670870.2	19.8
204604	441034.8	3669650.8	66.1	205628	440835.8	3670891.5	24.5
204616	441027.5	3669671.5	67.1	205640	440823.2	3670912.5	27.1
204628	441022.3	3669695.5	66.2	205652	440819.9	3670935.0	24.1
204640	441017.0	3669720.5	66.0	205704	440829.8	3670955.5	21.6
204652	441008.8	3669743.5	66.7	205716	440846.4	3670978.5	18.7
204704	440998.9	3669765.5	65.9	205728	440858.4	3671001.2	19.8
204716	440987.9	3669790.5	65.7	205740	440869.5	3671024.2	25.9
204728	440981.7	3669816.5	65.5	205752	440879.1	3671047.8	28.3
204740	440977.6	3669843.8	62.1	205804	440886.4	3671071.8	36.9
204741	440977.2	3669846.0	60.9	205816	440892.0	3671096.0	39.8
204804	440959.4	3669878.5	64.6	205828	440895.9	3671120.2	41.7
204816	440937.0	3669902.2	64.0	205840	440898.5	3671147.5	40.7
204828	440925.8	3669924.5	64.0	205852	440900.2	3671172.5	36.2
204840	440917.8	3669949.5	60.7	205904	440901.1	3671197.8	24.5
204852	440915.1	3669973.5	—	205916	440900.7	3671222.8	16.5
204904	440911.8	3670000.5	50.4	205928	440900.9	3671248.0	13.5
204916	440908.1	3670024.5	50.0	205940	440902.3	3671273.8	12.4
204928	440903.0	3670048.5	50.2	205952	440905.0	3671299.0	12.7
204940	440898.1	3670073.5	50.0	210004	440907.7	3671325.0	13.6
204952	440892.0	3670096.8	48.0	210016	440919.6	3671347.0	14.5
205004	440885.4	3670121.0	46.0	210028	440935.6	3671367.5	14.9
205016	440878.1	3670143.5	43.4	210040	440950.4	3671389.8	13.3
205028	440870.4	3670164.0	29.0	210052	440961.4	3671414.8	16.7
205040	440863.9	3670183.0	25.0	210104	440966.8	3671442.5	18.5
205050	440851.9	3670205.5	26.7	210116	440968.7	3671462.5	19.1
205104	440845.0	3670239.2	28.1	210128	440975.3	3671488.2	19.8
205116	440839.0	3670263.0	23.3	210140	440979.8	3671512.0	18.9
205128	440847.1	3670283.5	20.9	210152	440983.4	3671537.8	19.6
205140	440855.2	3670307.0	20.7	210204	440986.8	3671562.2	23.3
205152	440859.3	3670330.2	17.8	210216	440990.1	3671587.0	23.3
205204	440859.2	3670353.5	14.6	210228	440991.7	3671612.2	18.3
205216	440855.5	3670381.5	13.6	210240	440992.4	3671637.0	13.6
205228	440855.5	3670405.5	13.1	210252	440993.1	3671661.8	10.1
205240	440858.5	3670430.0	12.4	210304	440995.5	3671686.0	7.7
205252	440859.3	3670455.5	30.6	210316	441000.5	3671709.8	7.8
205304	440859.7	3670482.2	30.2	210328	441006.8	3671733.5	10.1
205311	440860.7	3670498.0	25.2	210340	441012.3	3671757.8	12.4
205327	440874.6	3670515.8	25.4	210352	441015.9	3671782.8	14.6
205327	440874.6	3670515.8	25.1	210404	441017.8	3671807.5	15.1
205352	440886.8	3670578.0	29.1	210416	441018.8	3671832.5	17.7
205404	440888.4	3670603.2	29.5	210428	441019.3	3671857.5	22.8
205416	440886.2	3670627.0	26.4	210440	441022.2	3671882.2	28.8
205428	440881.1	3670652.5	21.1	210452	441027.1	3671907.0	31.0

Survey Line SL09

L Lake

Savannah River Plant, South Carolina

Survey Direction: North

Survey Date/Time: 20 June 1996, 20:44:17 to 21:09:22 (UTC)

Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
210504	441034.2	3671931.5	31.5	210716	441059.7	3672203.5	41.8
210516	441041.0	3671955.8	35.6	210728	441062.7	3672228.8	42.9
210528	441042.6	3671981.2	34.4	210740	441066.7	3672252.5	42.6
210540	441042.7	3672005.0	26.1	210752	441075.9	3672275.0	42.8
210552	441044.8	3672029.5	17.9	210804	441093.1	3672291.5	40.8
210604	441050.2	3672054.0	19.4	210816	441108.6	3672310.2	38.4
210616	441054.6	3672078.5	23.1	210828	441121.1	3672331.8	37.6
210628	441057.8	3672103.5	25.0	210840	441131.2	3672354.0	32.4
210640	441061.3	3672128.5	25.6	210852	441138.6	3672378.0	24.1
210652	441062.7	3672153.8	24.5	210904	441145.1	3672401.0	18.0
210704	441061.4	3672178.5	29.8	210916	441147.8	3672421.5	13.6

Survey Line SL09
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 20:44:17 to 21:09:22 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
210504	441034.2	3671931.5	31.5	210716	441059.7	3672203.5	41.8
210516	441041.0	3671955.8	35.6	210728	441062.7	3672228.8	42.9
210528	441042.6	3671981.2	34.4	210740	441066.7	3672252.5	42.6
210540	441042.7	3672005.0	26.1	210752	441075.9	3672275.0	42.8
210552	441044.8	3672029.5	17.9	210804	441093.1	3672291.5	40.8
210604	441050.2	3672054.0	19.4	210816	441108.6	3672310.2	38.4
210616	441054.6	3672078.5	23.1	210828	441121.1	3672331.8	37.6
210628	441057.8	3672103.5	25.0	210840	441131.2	3672354.0	32.4
210640	441061.3	3672128.5	25.6	210852	441138.6	3672378.0	24.1
210652	441062.7	3672153.8	24.5	210904	441145.1	3672401.0	18.0
210704	441061.4	3672178.5	29.8	210916	441147.8	3672421.5	13.6

Survey Line SL10

L Lake

Savannah River Plant, South Carolina

Survey Direction: Northeast

Survey Date/Time: 21 June 1996, 13:48:00 to 13:58:06 (UTC)

Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
134802	441949.6	3673654.5	-	135314	442274.9	3673846.8	18.0
134814	441960.6	3673664.5	-	135326	442288.4	3673852.5	18.0
134826	441971.0	3673674.5	-	135338	442302.1	3673858.0	17.9
134838	441981.2	3673685.2	-	135350	442315.8	3673863.0	10.5
134850	441991.9	3673694.8	-	135402	442329.3	3673868.5	17.0
134902	442003.8	3673702.8	-	135414	442342.5	3673874.8	17.0
134914	442016.2	3673710.2	-	135426	442355.3	3673881.0	16.9
134926	442028.8	3673716.8	-	135438	442368.1	3673888.0	9.0
134938	442042.1	3673722.5	19.2	135450	442381.1	3673895.0	12.5
134950	442055.2	3673728.0	20.0	135502	442393.9	3673902.2	16.9
135002	442068.4	3673734.0	19.9	135514	442406.8	3673909.5	12.9
135014	442081.7	3673739.5	20.3	135526	442419.8	3673917.2	16.9
135026	442095.0	3673745.0	19.3	135538	442432.7	3673925.0	12.0
135038	442108.3	3673750.5	19.8	135550	442445.5	3673932.0	15.8
135050	442121.9	3673756.2	20.1	135602	442458.3	3673939.5	16.8
135102	442135.4	3673762.5	20.9	135614	442471.0	3673947.0	19.0
135114	442148.6	3673769.0	21.2	135626	442483.4	3673953.5	13.4
135126	442161.8	3673776.0	20.9	135638	442496.3	3673960.5	14.9
135138	442174.8	3673782.5	20.2	135650	442510.1	3673967.5	14.5
135150	442187.4	3673790.5	19.0	135702	442523.6	3673973.2	14.6
135202	442199.8	3673798.8	12.6	135714	442536.8	3673979.0	13.4
135214	442211.8	3673807.5	9.8	135726	442550.8	3673985.2	14.6
135226	442223.7	3673816.0	18.6	135738	442564.7	3673990.8	14.2
135238	442236.2	3673825.0	12.2	135750	442578.5	3673995.8	12.2
135250	442248.6	3673832.8	18.8	135802	442591.4	3674000.2	6.9
135302	442261.6	3673840.5	18.3				

Survey Line SL11
L Lake
Savannah River Plant, South Carolina

Survey Direction: Southwest
Survey Date/Time: 21 June 1996, 14:04:06 to 14:17:32 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
140410	442544.1	3674098.5	8.5	141058	442154.1	3673833.0	9.4
140422	442533.0	3674092.5	6.7	141110	442143.2	3673823.5	18.1
140434	442520.9	3674085.5	9.2	141122	442131.8	3673815.0	19.2
140446	442508.8	3674078.5	6.8	141134	442120.8	3673806.2	18.7
140458	442496.9	3674070.8	6.6	141146	442109.4	3673797.5	19.1
140510	442485.3	3674063.0	6.8	141158	442098.1	3673788.8	20.0
140522	442473.7	3674055.5	8.1	141210	442087.0	3673780.5	19.5
140534	442462.0	3674048.0	9.6	141222	442075.5	3673771.5	19.3
140546	442450.9	3674040.8	6.9	141234	442064.2	3673763.0	20.5
140558	442438.4	3674033.0	7.2	141246	442052.8	3673754.5	22.0
140610	442426.5	3674025.5	6.7	141258	442041.6	3673746.5	20.5
140622	442414.8	3674018.2	8.7	141310	442029.9	3673738.8	22.4
140634	442402.9	3674010.5	8.6	141322	442018.2	3673730.5	21.6
140646	442391.0	3674002.8	9.2	141334	442006.8	3673722.0	21.4
140658	442378.8	3673995.8	6.9	141346	441995.0	3673714.0	22.0
140710	442366.6	3673988.0	10.4	141358	441983.8	3673706.0	22.3
140722	442354.8	3673981.0	9.9	141410	441971.7	3673699.0	22.4
140734	442343.3	3673972.5	9.7	141422	441959.3	3673693.5	23.0
140746	442332.1	3673964.0	7.9	141434	441946.8	3673687.5	23.0
140758	442320.5	3673956.2	9.4	141446	441934.6	3673680.5	25.2
140810	442308.8	3673948.2	6.4	141458	441922.9	3673672.5	25.0
140822	442297.2	3673940.0	6.6	141510	441911.5	3673664.0	27.8
140834	442286.1	3673931.5	6.8	141522	441900.4	3673655.0	22.4
140846	442275.1	3673923.0	6.5	141534	441889.5	3673646.8	18.4
140858	442264.1	3673914.8	8.8	141546	441878.0	3673639.0	15.4
140910	442253.2	3673907.0	7.4	141558	441866.6	3673631.2	17.2
140922	442242.2	3673898.2	8.6	141610	441854.9	3673623.5	17.2
140934	442231.4	3673890.0	7.0	141622	441843.6	3673615.5	16.4
140946	442220.4	3673882.0	7.4	141634	441832.7	3673607.5	16.1
140958	442209.3	3673874.0	12.2	141646	441821.7	3673599.2	16.8
141010	442198.0	3673865.5	14.6	141658	441810.1	3673590.5	17.8
141022	442186.9	3673857.5	14.2	141710	441798.6	3673581.5	16.0
141034	442175.9	3673849.5	9.8	141722	441787.0	3673573.2	15.5
141046	442164.9	3673841.0	10.0				

Survey Line SL12

L Lake

Savannah River Plant, South Carolina

Survey Direction: Northeast

Survey Date/Time: 21 June 1996, 14:20:51 to 14:34:17 (UTC)

Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
142052	441732.1	3673611.0	13.7	142740	442115.4	3673881.2	10.4
142104	441740.2	3673622.2	6.4	142752	442122.2	3673893.5	7.2
142116	441749.4	3673632.5	15.5	142804	442129.1	3673905.5	8.7
142128	441758.8	3673643.0	16.7	142816	442136.2	3673917.5	6.3
142140	441768.1	3673653.2	8.1	142828	442144.3	3673929.0	6.7
142152	441777.2	3673664.5	16.4	142840	442154.4	3673938.2	6.8
142204	441785.8	3673676.0	14.7	142852	442165.4	3673946.5	7.3
142216	441794.2	3673687.2	6.9	142904	442176.4	3673954.8	6.6
142228	441803.5	3673698.0	15.5	142916	442186.8	3673963.8	6.8
142240	441814.3	3673707.0	15.8	142928	442197.3	3673972.5	6.5
142252	441825.1	3673716.0	16.1	142940	442208.2	3673981.0	6.4
142304	441836.3	3673724.0	12.8	142952	442219.6	3673988.2	7.3
142316	441848.0	3673732.2	11.1	143004	442231.6	3673994.5	6.9
142328	441859.8	3673740.0	13.5	143016	442243.6	3674000.8	6.2
142340	441871.8	3673747.2	8.2	143028	442255.7	3674007.0	6.7
142352	441884.3	3673755.0	13.2	143040	442267.6	3674013.2	6.1
142404	441896.4	3673761.8	12.1	143052	442279.6	3674019.2	6.1
142416	441908.4	3673769.0	16.8	143104	442291.5	3674024.8	6.3
142428	441920.3	3673775.8	20.6	143116	442303.5	3674029.5	6.3
142440	441932.6	3673783.5	19.7	143128	442315.3	3674034.8	6.3
142452	441945.1	3673790.8	6.3	143140	442326.8	3674041.0	6.4
142504	441957.6	3673798.2	8.8	143152	442338.1	3674047.5	6.3
142516	441970.3	3673805.0	7.5	143204	442349.2	3674054.2	6.3
142528	441982.8	3673811.5	8.2	143216	442360.3	3674061.0	6.6
142540	441995.6	3673817.8	6.3	143228	442371.3	3674067.8	6.3
142552	442008.5	3673823.5	10.7	143240	442382.5	3674074.2	6.5
142604	442021.7	3673828.5	22.4	143252	442393.8	3674080.5	6.3
142616	442034.8	3673834.2	24.7	143304	442405.2	3674087.0	6.7
142628	442047.4	3673841.0	21.7	143316	442416.9	3674093.0	6.3
142640	442060.6	3673846.5	12.3	143328	442428.4	3674098.8	6.3
142652	442073.6	3673851.0	6.4	143340	442440.5	3674104.5	6.0
142704	442087.0	3673855.5	10.0	143352	442452.3	3674110.0	6.5
142716	442099.3	3673860.5	6.8	143404	442463.9	3674115.5	6.7
142728	442108.9	3673869.2	8.8	143416	442475.3	3674120.8	72.4

Survey Line SL13
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 21 June 1996, 16:16:23 to 16:29:52 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
161640	441127.9	3669544.8	28.8	162328	440957.8	3670075.8	57.1
161652	441122.8	3669558.0	29.3	162340	440954.6	3670092.5	56.4
161704	441117.7	3669571.8	30.3	162352	440950.4	3670109.0	53.9
161716	441111.5	3669584.5	41.4	162404	440945.5	3670125.0	49.4
161728	441104.2	3669598.5	45.9	162416	440938.4	3670140.2	44.2
161740	441098.0	3669614.0	47.4	162428	440930.3	3670155.0	45.2
161752	441091.8	3669629.8	51.3	162440	440923.2	3670170.5	42.8
161804	441085.8	3669645.0	59.0	162452	440916.9	3670186.0	39.5
161816	441080.2	3669660.5	62.3	162504	440910.8	3670202.0	33.8
161828	441074.9	3669676.8	64.1	162516	440904.9	3670217.5	32.3
161840	441070.2	3669693.0	63.5	162528	440898.6	3670233.5	30.2
161852	441065.6	3669709.2	—	162540	440892.7	3670249.2	28.1
161904	441061.6	3669725.5	65.3	162552	440887.3	3670265.5	26.3
161916	441058.3	3669742.0	64.0	162604	440888.8	3670281.0	42.3
161928	441055.0	3669758.5	63.1	162616	440896.0	3670295.5	43.3
161940	441052.1	3669774.5	62.8	162628	440905.1	3670309.0	33.2
161952	441048.3	3669790.8	61.6	162640	440913.4	3670323.0	40.1
162004	441043.8	3669806.5	61.4	162652	440918.5	3670338.2	40.3
162016	441038.9	3669822.5	60.4	162704	440921.6	3670354.8	25.1
162028	441033.4	3669838.2	57.6	162716	440923.0	3670371.0	22.0
162040	441027.4	3669854.0	52.4	162728	440922.7	3670388.0	20.6
162052	441021.3	3669869.5	52.7	162740	440921.8	3670404.8	23.0
162104	441014.7	3669885.0	52.1	162752	440920.7	3670421.8	26.3
162116	441008.2	3669900.5	51.2	162804	440919.4	3670438.8	22.9
162128	441002.3	3669916.0	50.5	162816	440918.2	3670456.0	18.9
162140	440995.9	3669932.0	50.6	162828	440917.1	3670473.5	16.9
162152	440989.9	3669947.5	56.6	162840	440917.5	3670490.5	15.7
162204	440983.7	3669962.8	60.1	162852	440918.6	3670507.5	13.1
162216	440978.1	3669978.2	60.4	162904	440919.7	3670524.5	13.1
162228	440972.8	3669994.0	60.3	162916	440920.8	3670541.2	13.7
162240	440968.5	3670010.0	59.6	162928	440922.7	3670558.5	14.1
162252	440965.0	3670026.5	58.6	162940	440924.5	3670575.2	15.0
162304	440962.3	3670042.8	58.4	162952	440925.8	3670592.5	15.4
162316	440960.1	3670059.0	—				

Survey Line SL14
L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 21 June 1996, 16:35:30 to 16:46:43 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
163533	440967.9	3670432.2	36.7	164109	441030.5	3669994.5	46.9
163545	440965.5	3670418.0	41.6	164121	441033.7	3669977.8	42.5
163557	440963.3	3670403.0	42.4	164133	441037.5	3669961.0	44.8
163609	440963.7	3670387.0	38.9	164145	441040.7	3669944.5	46.0
163621	440966.2	3670371.2	39.2	164157	441044.1	3669927.8	46.3
163633	440968.1	3670355.0	25.8	164209	441047.6	3669911.0	48.4
163645	440967.3	3670338.2	20.7	164221	441052.2	3669894.5	50.9
163657	440963.3	3670322.2	17.1	164233	441058.3	3669878.5	52.4
163709	440956.1	3670307.5	17.6	164245	441064.8	3669862.0	53.0
163721	440950.3	3670292.2	14.5	164257	441071.4	3669846.5	56.9
163733	440944.6	3670276.8	27.4	164309	441078.3	3669830.8	59.1
163745	440939.8	3670261.0	33.7	164321	441085.1	3669815.0	59.5
163757	440938.4	3670245.0	34.6	164333	441092.3	3669799.2	60.3
163809	440941.0	3670229.2	31.3	164345	441098.9	3669783.5	61.8
163821	440945.2	3670213.0	29.2	164357	441105.4	3669767.5	60.2
163833	440950.8	3670197.5	35.1	164409	441111.4	3669751.8	50.2
163845	440959.1	3670183.2	37.7	164421	441117.4	3669735.5	39.4
163857	440968.4	3670169.0	39.6	164433	441122.8	3669719.5	41.4
163909	440975.4	3670154.2	38.2	164445	441128.1	3669703.2	36.8
163921	440982.0	3670139.0	49.4	164457	441133.5	3669687.0	34.6
163933	440989.5	3670124.0	53.7	164509	441139.4	3669670.8	31.6
163945	440997.0	3670108.5	55.1	164521	441145.6	3669655.0	29.0
163957	441003.3	3670093.0	55.9	164533	441151.0	3669638.8	26.3
164009	441009.0	3670076.8	55.1	164545	441155.9	3669622.5	23.7
164021	441013.8	3670060.5	54.6	164557	441161.4	3669606.2	21.9
164033	441018.4	3670044.0	53.9	164609	441167.2	3669590.0	19.6
164045	441022.8	3670027.5	52.2	164621	441172.8	3669573.5	16.2
164057	441026.8	3670011.0	50.7	164633	441178.0	3669557.0	16.2

Survey Line SL15
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 21 June 1996, 16:51:29 to 17:03:58 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
165131	441222.1	3669596.0	13.9	165755	441070.1	3670037.0	31.6
165143	441219.3	3669609.0	15.3	165807	441065.4	3670051.2	33.1
165155	441216.7	3669622.5	16.4	165819	441060.6	3670065.5	32.7
165207	441212.1	3669636.0	15.9	165831	441055.9	3670079.5	33.3
165219	441204.8	3669648.5	15.9	165843	441051.2	3670093.8	43.2
165231	441196.4	3669660.8	17.3	165855	441046.7	3670107.8	44.4
165243	441189.9	3669674.0	19.1	165907	441042.0	3670121.8	46.1
165255	441185.8	3669688.0	21.6	165919	441037.4	3670136.0	49.0
165307	441181.6	3669702.0	25.1	165931	441032.9	3670150.2	50.4
165319	441176.8	3669715.5	27.9	165943	441028.3	3670164.5	49.6
165331	441171.2	3669729.0	31.9	165955	441023.7	3670178.8	42.5
165343	441165.9	3669742.5	32.1	170007	441019.1	3670193.0	32.9
165355	441160.4	3669756.2	38.9	170019	441014.5	3670207.5	24.8
165407	441155.3	3669770.0	54.9	170031	441009.5	3670221.8	23.8
165419	441150.9	3669783.2	58.0	170043	441004.7	3670236.0	20.5
165431	441146.2	3669797.0	58.8	170055	441000.2	3670250.5	20.3
165443	441141.3	3669811.0	58.1	170107	440995.9	3670264.8	21.4
165455	441136.6	3669824.5	56.5	170119	440996.1	3670279.2	29.1
165507	441131.9	3669838.5	55.8	170131	440998.5	3670294.0	35.1
165519	441127.1	3669852.5	52.4	170143	441001.2	3670308.2	31.5
165531	441122.3	3669866.8	48.6	170155	441003.9	3670323.0	28.6
165543	441117.8	3669881.2	44.5	170207	441006.3	3670338.0	30.5
165555	441113.5	3669895.5	34.9	170219	441008.2	3670353.0	28.0
165607	441109.6	3669909.5	32.4	170231	441009.4	3670368.0	25.8
165619	441105.7	3669923.5	31.1	170243	441009.9	3670383.0	23.8
165631	441101.5	3669938.0	26.3	170255	441009.9	3670398.0	20.6
165643	441097.2	3669952.2	28.7	170307	441009.6	3670413.0	18.6
165655	441092.9	3669966.5	28.5	170319	441009.5	3670428.0	18.0
165707	441088.3	3669980.5	28.8	170331	441009.3	3670443.0	17.5
165719	441083.8	3669994.5	25.8	170343	441009.4	3670458.0	16.2
165731	441079.3	3670009.0	27.7	170355	441010.2	3670473.0	12.1
165743	441074.8	3670023.0	29.1				

Survey Line SL16
L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 21 June 1996, 17:12:37 to 17:23:23 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
171239	441083.5	3670425.5	18.3	171803	441113.8	3670062.5	23.3
171251	441078.1	3670413.2	20.5	171815	441117.8	3670048.0	19.3
171303	441073.7	3670400.0	23.7	171827	441121.1	3670034.0	19.2
171315	441071.1	3670386.0	26.5	171839	441125.5	3670019.5	22.1
171327	441070.4	3670371.5	28.8	171851	441129.5	3670005.2	24.2
171339	441068.5	3670357.2	31.0	171903	441133.4	3669991.0	21.7
171351	441064.9	3670343.5	31.3	171915	441137.5	3669976.5	25.7
171403	441058.9	3670330.8	33.2	171927	441141.9	3669962.5	27.8
171415	441053.5	3670317.8	36.1	171939	441146.9	3669948.5	30.0
171427	441049.8	3670303.8	36.6	171951	441152.5	3669935.2	30.1
171439	441044.7	3670290.5	36.7	172003	441159.1	3669921.5	32.8
171451	441041.5	3670276.8	37.3	172015	441165.5	3669908.2	40.0
171503	441043.4	3670263.5	38.6	172027	441171.9	3669895.0	48.2
171515	441046.5	3670249.5	39.7	172039	441177.9	3669881.5	54.6
171527	441047.9	3670235.5	40.4	172051	441184.3	3669868.0	54.0
171539	441048.7	3670221.0	46.8	172103	441190.0	3669854.5	51.9
171551	441051.8	3670207.0	49.3	172115	441195.5	3669840.8	48.8
171603	441057.6	3670194.0	49.1	172127	441200.2	3669826.5	47.8
171615	441066.2	3670183.0	46.6	172139	441204.6	3669812.5	44.3
171627	441076.4	3670173.0	44.2	172151	441208.5	3669798.0	36.3
171639	441085.1	3670161.8	41.7	172203	441211.8	3669783.5	24.1
171651	441090.8	3670148.2	40.1	172215	441215.0	3669769.0	26.0
171703	441095.0	3670134.0	36.4	172227	441218.6	3669754.5	22.6
171715	441099.1	3670119.8	30.4	172239	441222.4	3669740.0	18.1
171727	441102.8	3670105.8	28.4	172251	441226.4	3669726.0	15.4
171739	441106.6	3670091.2	25.9	172303	441231.0	3669711.0	13.7
171751	441110.2	3670076.8	27.8	172315	441236.0	3669697.0	10.8

Survey Line SL1L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 21 June 1996, 17:40:59 17:50:03 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
174101	441158.2	3670423.2	16.9	174538	441204.9	3670106.5	11.5
174113	441156.3	3670411.0	21.9	174559	441210.4	3670081.8	11.5
174125	441153.0	3670398.0	28.8	174611	441214.4	3670068.0	9.5
174137	441151.9	3670385.0	33.1	174623	441218.6	3670054.0	8.1
174149	441152.2	3670370.2	38.4	174635	441223.0	3670040.0	15.3
174201	441153.2	3670356.2	38.8	174647	441227.0	3670026.5	16.1
174213	441155.4	3670342.2	39.0	174659	441230.6	3670012.0	17.0
174225	441156.7	3670328.2	36.0	174711	441234.1	3669997.8	19.0
174237	441156.4	3670314.2	34.8	174723	441237.4	3669983.2	20.7
174249	441156.1	3670300.5	38.6	174735	441240.9	3669969.0	22.4
174301	441156.3	3670286.0	39.8	174747	441244.9	3669955.0	22.8
174313	441156.6	3670271.8	35.2	174759	441248.7	3669941.0	22.7
174325	441159.6	3670258.0	30.9	174811	441253.0	3669927.0	22.4
174337	441164.7	3670244.5	27.7	174823	441257.2	3669913.5	21.7
174349	441169.6	3670230.8	23.8	174835	441262.0	3669899.5	20.9
174401	441174.5	3670217.0	19.5	174847	441267.1	3669885.5	—
174413	441179.4	3670203.8	16.2	174859	441272.4	3669871.8	19.8
174425	441184.3	3670189.5	13.5	174911	441277.8	3669858.0	19.1
174437	441188.8	3670176.0	11.3	174923	441283.4	3669844.2	18.9
174449	441192.8	3670162.0	10.4	174935	441289.5	3669830.8	15.3
174501	441196.4	3670148.5	10.1	174947	441295.6	3669817.8	12.9
174514	441199.6	3670133.8	10.5	174959	441302.8	3669804.0	10.7
174526	441202.3	3670120.0	10.3				

Appendix B

Positioning Information for the Seismic Reflection Survey Data

Survey Line PL01
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 13:56:55 to 14:37:41 (UTC)
Acoustic Source: Pinger operating at a frequency of 3.5 kHz
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	440903	3669608	58.0	0253	440823	3671617	22.1
0003	440899	3669632	48.2	0260	440828	3671660	14.2
0010	440883	3669648	42.4	0280	440819	3671757	34.4
0013	440861	3669662	40.9	0283	440823	3671799	45.3
0020	440849	3669683	39.4	0290	440833	3671839	45.8
0023	440855	3669707	42.9	0293	440843	3671882	44.8
0030	440859	3669732	62.0	0300	440852	3671922	47.0
0033	440856	3669761	63.5	0303	440859	3671965	46.5
0040	440838	3669794	64.8	0310	440862	3672008	46.4
0043	440829	3669835	65.5	0313	440866	3672052	48.3
0050	440818	3669876	64.8	0320	440869	3672096	42.4
0053	440797	3669910	64.7	0323	440873	3672137	40.5
0060	440783	3669950	64.7	0330	440878	3672181	39.7
0063	440775	3669994	63.8	0333	440883	3672224	37.5
0070	440762	3670034	64.2	0340	440884	3672267	37.8
0073	440750	3670074	63.4	0343	440886	3672310	33.3
0080	440735	3670115	—	0350	440896	3672349	28.4
0083	440722	3670154	58.8	0353	440903	3672391	26.9
0090	440712	3670196	57.2	0360	440911	3672431	27.8
0093	440700	3670237	50.1	0363	440919	3672474	27.7
0100	440690	3670278	48.1	0370	440927	3672516	28.2
0103	440696	3670321	42.7	0373	440935	3672558	36.0
0110	440704	3670385	54.6	0380	440941	3672600	35.0
0113	440707	3670428	56.0	0383	440952	3672640	39.5
0120	440709	3670471	57.7	0390	440971	3672678	39.6
0123	440716	3670511	58.2	0393	440984	3672718	40.2
0130	440722	3670554	55.8	0400	441006	3672754	37.8
0133	440721	3670597	54.0	0403	441033	3672784	29.5
0140	440723	3670640	51.6	0410	441065	3672814	25.4
0143	440729	3670681	52.5	0413	441094	3672846	21.4
0150	440733	3670724	54.8	0420	441125	3672875	21.0
0153	440739	3670767	54.9	0423	441157	3672904	17.3
0160	440745	3670810	49.7	0430	441189	3672932	10.4
0163	440750	3670854	43.9	0433	441221	3672961	14.4
0170	440752	3670895	44.6	0440	441250	3672990	16.3
0173	440755	3670938	42.5	0443	441280	3673021	33.1
0180	440760	3670980	48.4	0450	441311	3673052	33.4
0183	440767	3671022	50.7	0453	441343	3673079	37.0
0190	440770	3671066	48.6	0460	441376	3673107	—
0193	440771	3671109	47.8	0463	441410	3673135	32.6
0200	440774	3671152	50.7	0470	441442	3673163	32.8
0203	440780	3671194	51.1	0473	441476	3673190	31.5
0210	440785	3671236	49.2	0480	441508	3673216	30.3
0213	440789	3671277	46.2	0483	441544	3673241	29.5
0220	440793	3671320	43.6	0490	441576	3673270	30.2
0223	440796	3671364	44.7	0493	441605	3673303	29.4
0230	440800	3671405	47.2	0500	441634	3673334	26.1
0233	440807	3671448	46.0	0503	441662	3673368	17.1
0240	440813	3671492	41.7	0510	441691	3673400	17.0
0243	440812	3671535	42.1	0513	441722	3673430	18.0
0250	440815	3671576	30.5	0520	441750	3673460	18.7

Survey Line PL01

L Lake

Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 13:56:55 to 14:37:41 (UTC)
Acoustic Source: Pinger operating at a frequency of 3.5 kHz
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0523	441779	3673492	18.2	0550	441934	3673642	22.4
0530	441810	3673522	18.9	0553	441968	3673669	20.7
0533	441839	3673554	19.1	0560	442001	3673697	20.8
0540	441870	3673584	24.8	0563	442035	3673723	20.3
0543	441902	3673614	22.8	0570	442069	3673748	20.9

Survey Line PL02
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 14:50:38 to 15:34:51 (UTC)
Acoustic Source: Pinger operating at a frequency of 3.5 kHz
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	441999	3673750	22.2	0253	440775	3672230	31.9
0003	441970	3673728	22.9	0260	440770	3672189	38.2
0010	441940	3673706	22.4	0263	440766	3672148	34.8
0013	441918	3673676	—	0270	440765	3672106	32.3
0020	441894	3673646	19.3	0273	440765	3672066	35.7
0023	441872	3673617	18.6	0280	440765	3672025	39.6
0030	441850	3673590	18.5	0283	440757	3671984	42.1
0033	441824	3673563	19.1	0290	440747	3671944	43.9
0040	441799	3673535	17.0	0293	440742	3671903	40.2
0043	441776	3673504	18.3	0300	440738	3671861	42.0
0050	441753	3673478	17.6	0303	440734	3671820	49.1
0053	441727	3673448	17.0	0310	440730	3671778	49.6
0060	441701	3673416	16.3	0320	440727	3671720	45.8
0063	441675	3673386	14.2	0323	440725	3671678	36.6
0070	441645	3673359	18.4	0330	440719	3671636	45.6
0073	441610	3673338	18.3	0333	440714	3671595	48.7
0080	441579	3673315	27.0	0340	440710	3671553	47.3
0083	441544	3673295	20.7	0343	440706	3671511	46.1
0090	441510	3673274	22.9	0350	440701	3671469	45.5
0093	441474	3673254	20.5	0353	440695	3671429	48.2
0100	441438	3673236	16.7	0360	440690	3671388	50.2
0103	441403	3673216	18.9	0363	440684	3671346	51.0
0110	441368	3673196	21.7	0370	440679	3671306	53.3
0113	441333	3673176	22.3	0373	440677	3671264	54.3
0120	441300	3673152	23.4	0380	440673	3671222	54.2
0123	441266	3673129	25.3	0383	440669	3671180	54.4
0130	441233	3673105	32.5	0390	440666	3671139	55.0
0133	441199	3673083	34.7	0393	440666	3671098	53.8
0140	441166	3673059	35.6	0400	440664	3671058	54.7
0143	441138	3673030	35.7	0403	440662	3671016	56.1
0150	441112	3672998	—	0410	440667	3670974	51.6
0153	441087	3672966	37.3	0413	440664	3670934	51.8
0160	441066	3672931	37.4	0420	440666	3670892	57.3
0163	441045	3672896	38.4	0423	440663	3670853	56.9
0170	441025	3672861	38.8	0430	440652	3670814	58.1
0173	441003	3672827	39.0	0433	440643	3670774	56.0
0180	440985	3672790	38.2	0440	440641	3670734	56.5
0183	440972	3672752	39.4	0443	440638	3670696	57.6
0190	440960	3672712	38.8	0450	440636	3670655	58.6
0193	440941	3672676	36.1	0453	440634	3670614	57.3
0200	440915	3672644	29.8	0460	440632	3670574	58.9
0203	440905	3672604	22.3	0463	440630	3670533	58.7
0210	440902	3672563	20.1	0470	440627	3670492	—
0213	440902	3672522	23.0	0473	440620	3670450	59.9
0220	440890	3672482	22.6	0480	440613	3670410	61.1
0223	440878	3672444	22.6	0483	440609	3670367	60.6
0230	440861	3672409	22.0	0490	440604	3670327	61.5
0233	440842	3672374	21.5	0493	440599	3670285	61.9
0240	440817	3672342	21.2	0500	440593	3670242	61.9
0243	440800	3672305	23.8	0503	440587	3670201	60.3
0250	440786	3672269	26.9	0510	440595	3670159	60.1

Survey Line PL02

L Lake

Savannah River Plant, South Carolina

Survey Direction: South
 Survey Date/Time: 20 June 1996, 14:50:38 to 15:34:51 (UTC)
 Acoustic Source: Pinger operating at a frequency of 3.5 kHz
 Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0513	440610	3670118	58.3	0563	440757	3669638	25.6
0520	440622	3670077	48.9	0570	440775	3669600	31.2
0523	440635	3670036	44.4	0573	440789	3669562	12.1
0530	440646	3669997	41.6	0580	440802	3669523	19.0
0533	440688	3669834	25.5	0583	440817	3669485	21.5
0540	440699	3669790	20.1	0590	440831	3669448	28.7
0543	440708	3669752	19.1	0593	440846	3669409	28.9
0560	440734	3669674	28.0				

Survey Line PL03
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 15:40:24 to 16:12:37 (UTC)
Acoustic Source: Pinger operating at a frequency of 3.5 kHz
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	440858	3669546	40.8	0143	440758	3671532	44.2
0003	440843	3669596	39.1	0150	440769	3671618	26.6
0010	440821	3669670	35.2	0160	440778	3671705	22.3
0013	440805	3669742	48.8	0163	440788	3671782	46.9
0030	440760	3669873	62.6	0170	440798	3671898	47.6
0040	440735	3669954	63.0	0173	440807	3671976	44.1
0043	440711	3670026	64.6	0180	440811	3672055	38.7
0050	440683	3670096	62.4	0183	440827	3672129	36.6
0053	440653	3670166	62.9	0190	440839	3672206	33.5
0060	440633	3670237	62.0	0193	440850	3672281	30.4
0063	440650	3670308	60.0	0200	440855	3672357	23.3
0070	440659	3670385	59.1	0210	440902	3672467	25.3
0073	440670	3670461	59.3	0213	440922	3672540	27.0
0080	440673	3670537	59.3	0220	440952	3672609	34.6
0083	440674	3670614	58.3	0223	440985	3672680	41.1
0090	440678	3670689	58.5	0230	441015	3672752	36.3
0093	440685	3670768	57.6	0233	441058	3672818	27.8
0100	440696	3670844	55.6	0240	441115	3672872	19.6
0103	440706	3670919	50.3	0243	441174	3672925	10.9
0110	440716	3670996	54.2	0250	441234	3672973	13.2
0113	440719	3671073	54.3	0253	441300	3673014	29.9
0120	440726	3671150	54.2	0260	441364	3673056	32.1
0123	440736	3671225	50.3	0263	441430	3673097	30.4
0130	440747	3671301	47.5	0270	441496	3673144	27.7
0133	440752	3671378	48.3	0273	441554	3673193	27.7
0140	440756	3671454	45.2				

Survey Line PL07

L Lake

Savannah River Plant, South Carolina

Survey Direction: North
 Survey Date/Time: 20 June 1996, 19:03:06 to 19:39:52 (UTC)
 Acoustic Source: Pinger operating at a frequency of 3.5 kHz
 Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	440979	3669530	69.9	0160	440850	3671375	34.0
0010	440964	3669577	65.2	0163	440852	3671430	45.1
0013	440934	3669640	66.2	0170	440850	3671487	43.9
0020	440909	3669715	65.6	0173	440866	3671541	39.6
0023	440896	3669765	66.2	0180	440871	3671594	29.4
0030	440881	3669824	65.6	0183	440869	3671652	13.8
0033	440859	3669880	64.7	0200	440889	3671760	26.1
0040	440834	3669935	66.0	0203	440892	3671819	16.3
0043	440815	3669994	62.1	0210	440895	3671876	28.1
0050	440805	3670052	44.0	0213	440897	3671934	44.0
0053	440791	3670110	—	0220	440901	3671990	44.6
0060	440759	3670196	34.3	0223	440907	3672046	46.3
0063	440739	3670253	21.4	0230	440913	3672105	45.1
0070	440759	3670336	12.0	0233	440924	3672161	45.3
0073	440763	3670393	36.2	0240	440932	3672219	41.3
0080	440765	3670455	52.5	0243	440932	3672276	38.6
0090	440770	3670560	53.5	0250	440964	3672322	37.6
0093	440779	3670620	40.7	0253	440990	3672372	45.7
0100	440791	3670680	35.2	0260	441010	3672429	42.3
0103	440794	3670741	51.4	0263	441036	3672482	41.9
0110	440794	3670800	41.9	0270	441063	3672532	34.4
0113	440798	3670860	30.1	0273	441069	3672590	17.5
0120	440803	3670918	30.7	0280	441068	3672647	10.4
0123	440814	3670975	32.4	0283	441061	3672702	11.0
0130	440812	3671031	45.9	0290	441058	3672756	12.7
0133	440817	3671089	47.7	0293	441076	3672796	16.2
0140	440828	3671146	47.8	0300	441103	3672828	15.7
0143	440832	3671204	40.0	0303	441133	3672861	13.3
0150	440835	3671261	35.9	0310	441168	3672891	15.0
0153	440841	3671319	31.8				

Survey Line PL10
L Lake
Savannah River Plant, South Carolina

Survey Direction: Northeast
Survey Date/Time: 21 June 1996, 13:48:00 to 13:58:06 (UTC)
Acoustic Source: Pinger operating at a frequency of 3.5 kHz
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	442031	3673718	19.4	0053	442292	3673854	18.1
0003	442055	3673728	20.3	0060	442316	3673863	17.8
0010	442079	3673739	20.3	0063	442340	3673874	16.9
0013	442104	3673749	19.4	0070	442365	3673886	16.6
0020	442130	3673760	20.3	0073	442388	3673899	16.7
0023	442153	3673771	20.3	0080	442412	3673912	16.2
0030	442177	3673784	20.0	0083	442436	3673926	9.8
0033	442200	3673799	19.2	0090	442460	3673941	17.4
0040	442221	3673814	18.8	0093	442483	3673954	13.2
0043	442244	3673830	18.9	0100	442508	3673966	14.6
0050	442268	3673844	18.4	0103	442532	3673977	14.5

Survey Line PL11**L Lake****Savannah River Plant, South Carolina**

Survey Direction: Southwest
Survey Date/Time: 21 June 1996, 14:04:06 to 14:17:32 (UTC)
Acoustic Source: Pinger operating at a frequency of 3.5 kHz
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	442503	3674075	6.5	0050	442152	3673831	6.7
0003	442467	3674051	8.6	0053	442119	3673805	18.8
0010	442432	3674029	6.6	0060	442084	3673778	19.2
0013	442395	3674005	9.5	0063	442049	3673752	23.0
0020	442358	3673983	8.6	0070	442014	3673727	21.4
0023	442322	3673958	8.0	0073	441978	3673702	22.2
0030	442287	3673932	6.7	0080	441940	3673683	24.3
0033	442253	3673907	7.6	0083	441904	3673658	26.1
0040	442220	3673881	9.9	0090	441869	3673633	17.3
0043	442186	3673857	11.4	0093	441834	3673609	14.9

Survey Line PL13
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 21 June 1996, 16:16:23 to 16:29:52 (UTC)
Acoustic Source: Pinger operating at a frequency of 3.5 kHz
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	441106	3669594	45.0	0053	440943	3670130	45.8
0003	441087	3669641	55.9	0060	440920	3670178	40.7
0010	441071	3669689	63.6	0063	440902	3670226	31.3
0013	441059	3669740	63.8	0070	440887	3670275	36.6
0020	441049	3669790	61.8	0073	440911	3670318	39.3
0023	441033	3669838	57.9	0080	440923	3670366	22.3
0030	441015	3669885	52.1	0083	440921	3670419	26.8
0033	440995	3669933	51.0	0090	440917	3670472	16.9
0040	440978	3669980	60.5	0093	440920	3670524	13.1
0043	440964	3670030	59.5	0100	440925	3670576	15.0
0050	440957	3670081	57.1	0103	440929	3670626	13.2

Survey Line PL14

L Lake

Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 21 June 1996, 16:35:30 to 16:46:43 (UTC)
Acoustic Source: Pinger operating at a frequency of 3.5 kHz
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	440963	3670410	42.5	0043	441035	3669974	43.0
0003	440968	3670360	27.0	0050	441046	3669921	46.5
0010	440959	3670314	16.9	0053	441062	3669870	52.5
0013	440941	3670265	32.5	0060	441083	3669820	59.1
0020	440944	3670217	30.4	0063	441104	3669772	60.6
0023	440968	3670170	39.5	0070	441121	3669724	41.7
0030	440990	3670124	53.9	0073	441138	3669674	31.8
0033	441010	3670074	55.3	0080	441155	3669624	23.8
0040	441024	3670023	52.5	0083	441173	3669574	15.7

Survey Line PL15
 L Lake
 Savannah River Plant, South Carolina

Survey Direction: North
 Survey Date/Time: 21 June 1996, 16:51:29 to 17:03:58 (UTC)
 Acoustic Source: Pinger operating at a frequency of 3.5 kHz
 Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	441218	3669616	15.9	0050	441067	3670046	32.9
0003	441199	3669658	16.3	0053	441053	3670089	40.5
0010	441183	3669698	24.7	0060	441039	3670132	48.5
0013	441166	3669742	32.8	0063	441025	3670175	43.1
0020	441151	3669783	58.1	0070	441010	3670219	23.3
0023	441136	3669826	56.7	0073	440997	3670262	21.1
0030	441121	3669869	47.2	0080	441001	3670307	31.5
0033	441109	3669913	31.4	0083	441008	3670352	27.7
0040	441095	3669958	28.2	0090	441010	3670399	20.4
0043	441082	3670002	26.5	0093	441009	3670446	17.3

Survey Line PL01
L Lake
Savannah River Plant, South Carolina

Survey Direction: North
Survey Date/Time: 20 June 1996, 13:56:55 to 14:37:41 (UTC)
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	440903	3669608	58.0	0280	440819	3671757	34.4
0003	440899	3669632	48.2	0283	440823	3671799	45.3
0010	440883	3669648	42.4	0290	440833	3671839	45.8
0013	440861	3669662	40.9	0293	440843	3671882	44.8
0020	440849	3669683	39.4	0300	440852	3671922	47.0
0023	440855	3669707	42.9	0303	440859	3671965	46.5
0030	440859	3669732	62.0	0310	440862	3672008	46.4
0033	440856	3669761	63.5	0313	440866	3672052	48.3
0040	440838	3669794	64.8	0320	440869	3672096	42.4
0043	440829	3669835	65.5	0323	440873	3672137	40.5
0050	440818	3669876	64.8	0330	440878	3672181	39.7
0053	440797	3669910	64.7	0333	440883	3672224	37.5
0060	440783	3669950	64.7	0340	440884	3672267	37.8
0063	440775	3669994	63.8	0343	440886	3672310	33.3
0070	440762	3670034	64.2	0350	440896	3672349	28.4
0073	440750	3670074	63.4	0353	440903	3672391	26.9
0080	440735	3670115	—	0360	440911	3672431	27.8
0083	440722	3670154	58.8	0363	440919	3672474	27.7
0090	440712	3670196	57.2	0370	440927	3672516	28.2
0093	440700	3670237	50.1	0373	440935	3672558	36.0
0100	440690	3670278	48.1	0380	440941	3672600	35.0
0103	440696	3670321	42.7	0383	440952	3672640	39.5
0110	440704	3670385	54.6	0390	440971	3672678	39.6
0113	440707	3670428	56.0	0393	440984	3672718	40.2
0120	440709	3670471	57.7	0400	441006	3672754	37.8
0123	440716	3670511	58.2	0403	441033	3672784	29.5
0130	440722	3670554	55.8	0410	441065	3672814	25.4
0133	440721	3670597	54.0	0413	441094	3672846	21.4
0140	440723	3670640	51.6	0420	441125	3672875	21.0
0143	440729	3670681	52.5	0423	441157	3672904	17.3
0150	440733	3670724	54.8	0430	441189	3672932	10.4
0153	440739	3670767	54.9	0433	441221	3672961	14.4
0160	440745	3670810	49.7	0440	441250	3672990	16.3
0163	440750	3670854	43.9	0443	441280	3673021	33.1
0170	440752	3670895	44.6	0450	441311	3673052	33.4
0173	440755	3670938	42.5	0453	441343	3673079	37.0
0180	440760	3670980	48.4	0460	441376	3673107	—
0183	440767	3671022	50.7	0463	441410	3673135	32.6
0190	440770	3671066	48.6	0470	441442	3673163	32.8
0193	440771	3671109	47.8	0473	441476	3673190	31.5
0200	440774	3671152	50.7	0480	441508	3673216	30.3
0203	440780	3671194	51.1	0483	441544	3673241	29.5
0210	440785	3671236	49.2	0490	441576	3673270	30.2
0213	440789	3671277	46.2	0493	441605	3673303	29.4
0220	440793	3671320	43.6	0500	441634	3673334	26.1
0223	440796	3671364	44.7	0503	441662	3673368	17.1
0230	440800	3671405	47.2	0510	441691	3673400	17.0
0233	440807	3671448	46.0	0513	441722	3673430	18.0
0240	440813	3671492	41.7	0520	441750	3673460	18.7
0243	440812	3671535	42.1	0523	441779	3673492	18.2
0250	440815	3671576	30.5	0530	441810	3673522	18.9
0253	440823	3671617	22.1				
0260	440828	3671660	14.2				

Survey Line PL16
L Lake
Savannah River Plant, South Carolina

Survey Direction: South
Survey Date/Time: 21 June 1996, 17:12:37 to 17:23:23 (UTC)
Acoustic Source: Pinger operating at a frequency of 3.5 kHz
Coordinate System: UTM, NAD 1983, Zone 17

Time	Easting	Northing	Water Depth, ft	Time	Easting	Northing	Water Depth, ft
0000	441074	3670400	23.7	0043	441124	3670024	22.3
0003	441068	3670356	31.0	0050	441136	3669980	25.0
0010	441053	3670315	36.1	0053	441152	3669937	30.0
0013	441041	3670274	37.6	0060	441171	3669896	48.2
0020	441048	3670232	42.2	0063	441190	3669854	51.9
0023	441061	3670189	47.8	0070	441205	3669811	43.3
0030	441088	3670156	40.9	0073	441216	3669766	25.9
0033	441101	3670112	28.3	0080	441227	3669722	14.8
0040	441112	3670070	25.9				

443

443

③

443200,3675000

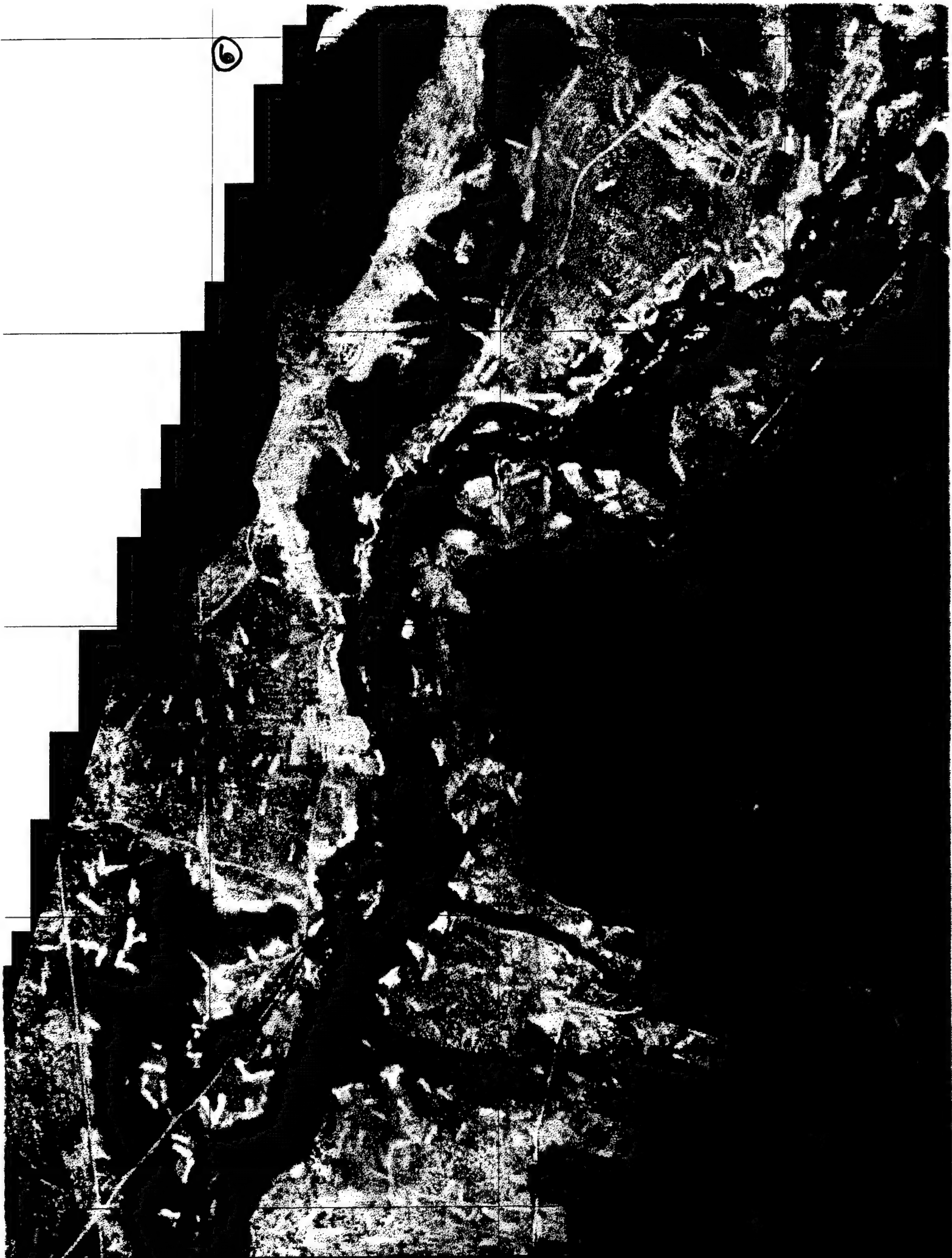
443200,3674000



5



6



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443200,36

443200,36

⑧

443200,3673000

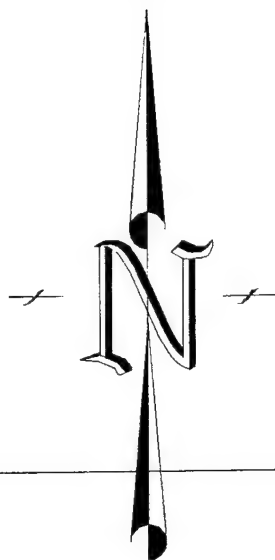
443200,3672000



No

500

10



44.

Note: Grid coordinates are approximate

500

0

500

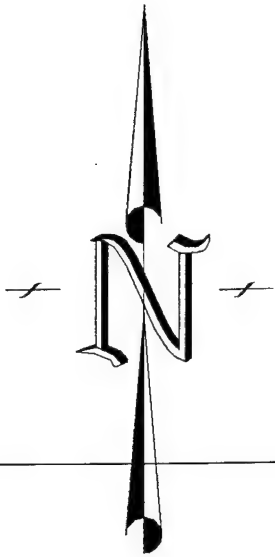
1000

meters

44.

L Lake
Savannah River Site
South Carolina

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443200,3671000

Coordinates are approximate

500

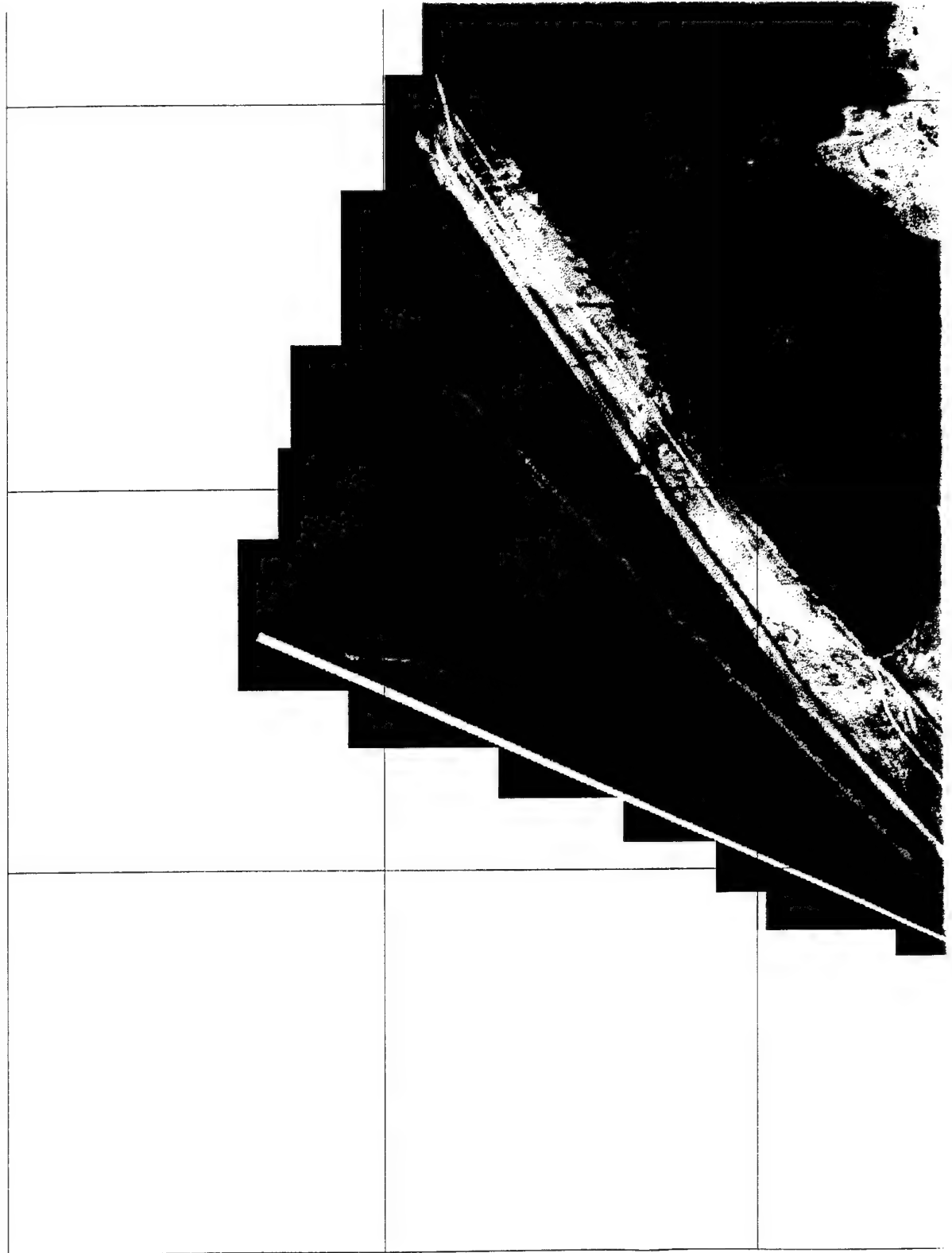
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meters

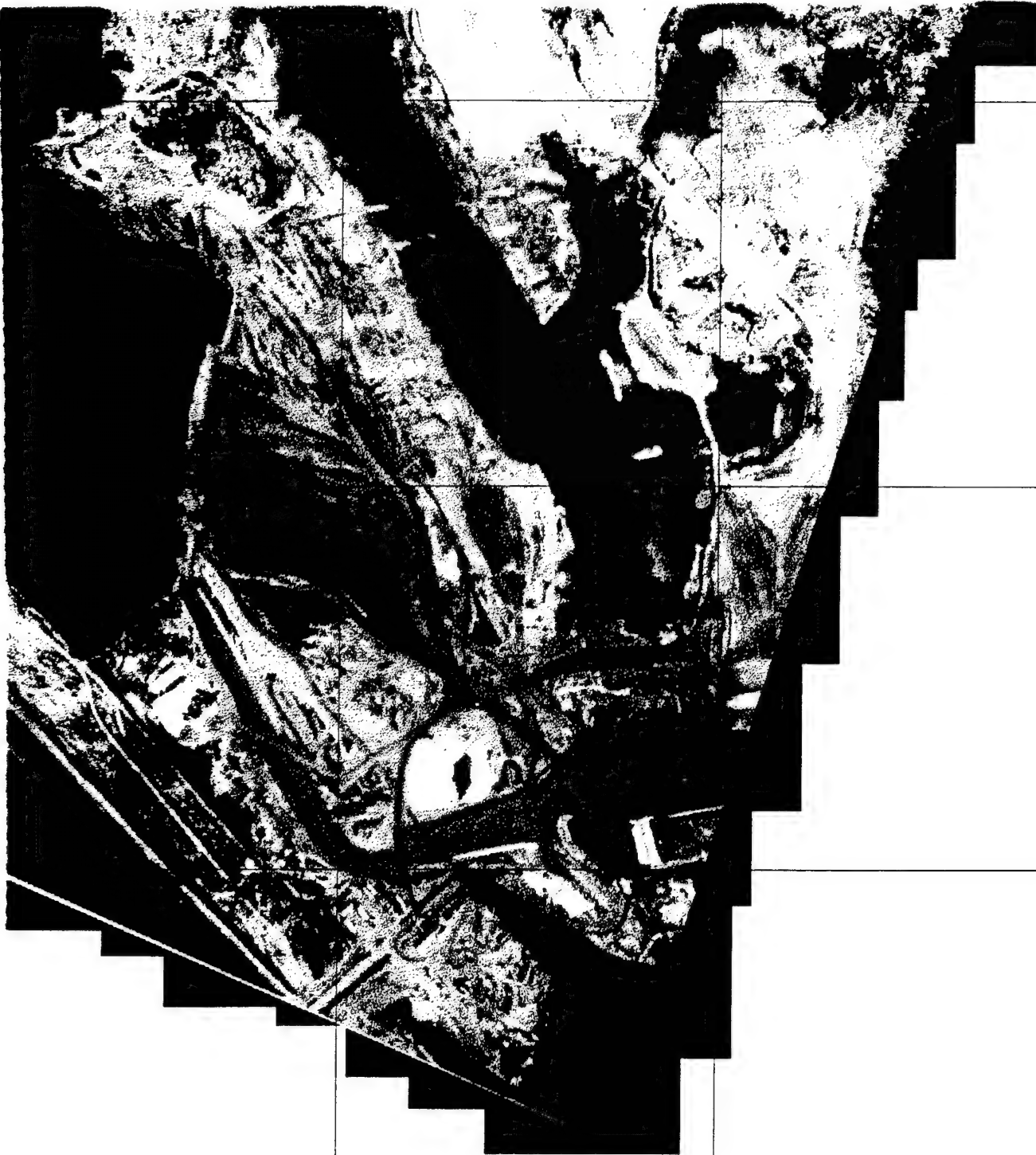
443200,3670000

L Lake
Savannah River Site
South Carolina

(12)



439200,3668500



Ae

Date:
Coord:

441200,3668500

L Lake
Savannah River Site
South Carolina

Plate 1
Aerial View of L Lake in August 1985
Prior to Flooding
(Dunn,Winn,and Bresnahan, 1995)

Date: 24 January 1997
Coordinate System: UTM NAD83 Zone 17

443200,36685

443200,3670000

L Lake
vannah River Site
South Carolina

Plate 1
v of L Lake in August 1985
prior to Flooding
inn,and Bresnahan, 1995)

443200,3669000

ary 1997
stem: UTM NAD83 Zone 17

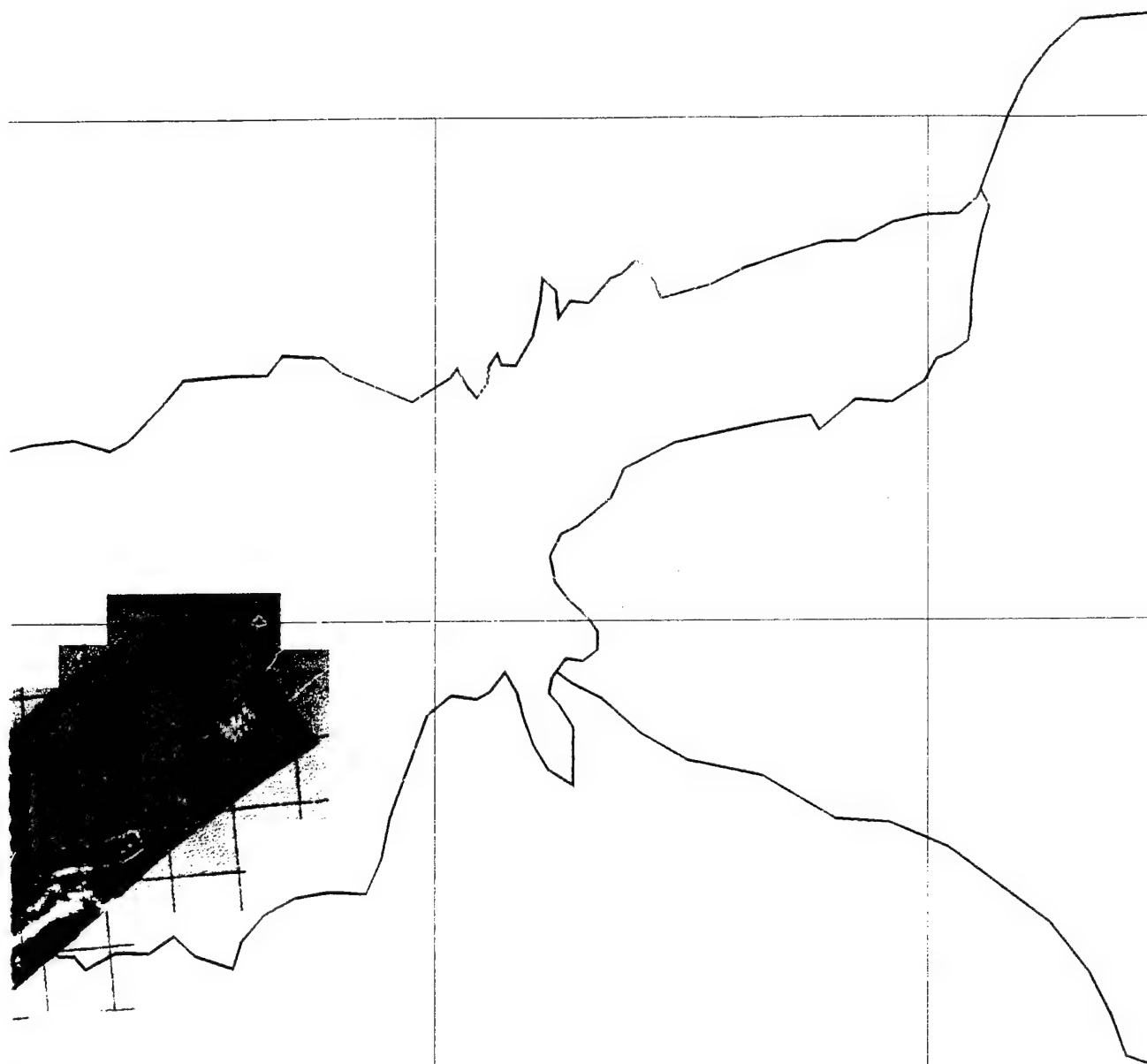
443200,3668500

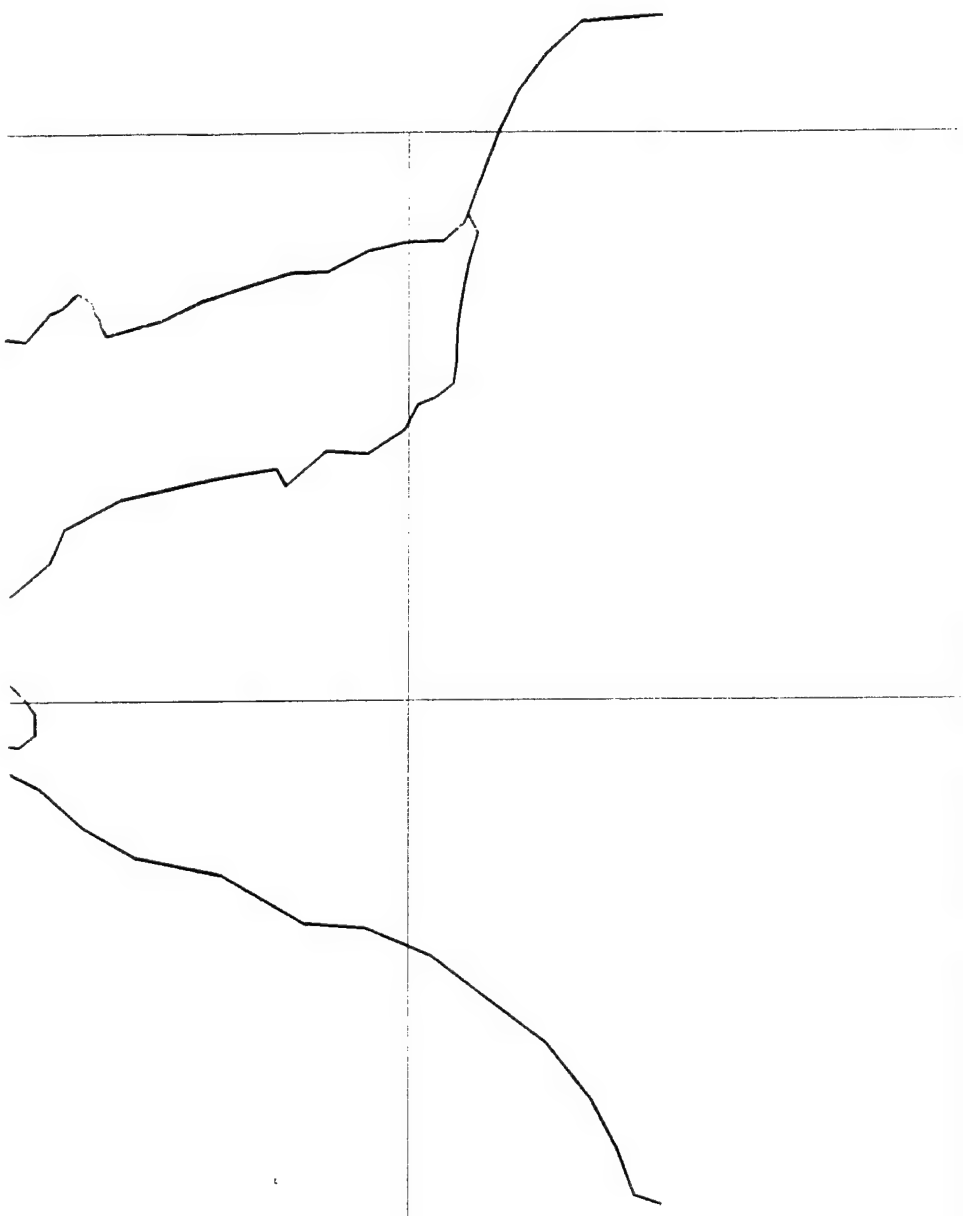
3674000

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3673000



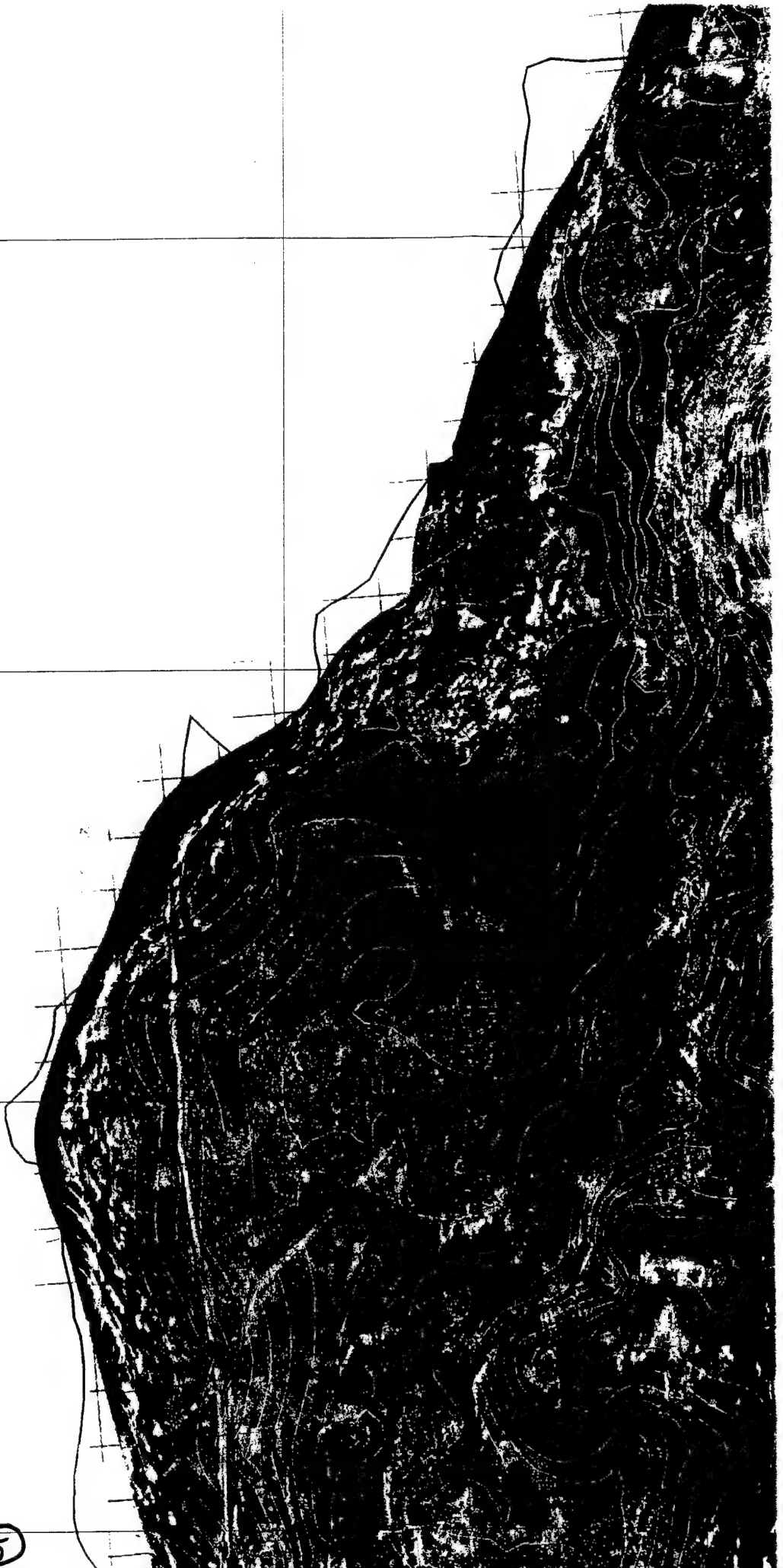


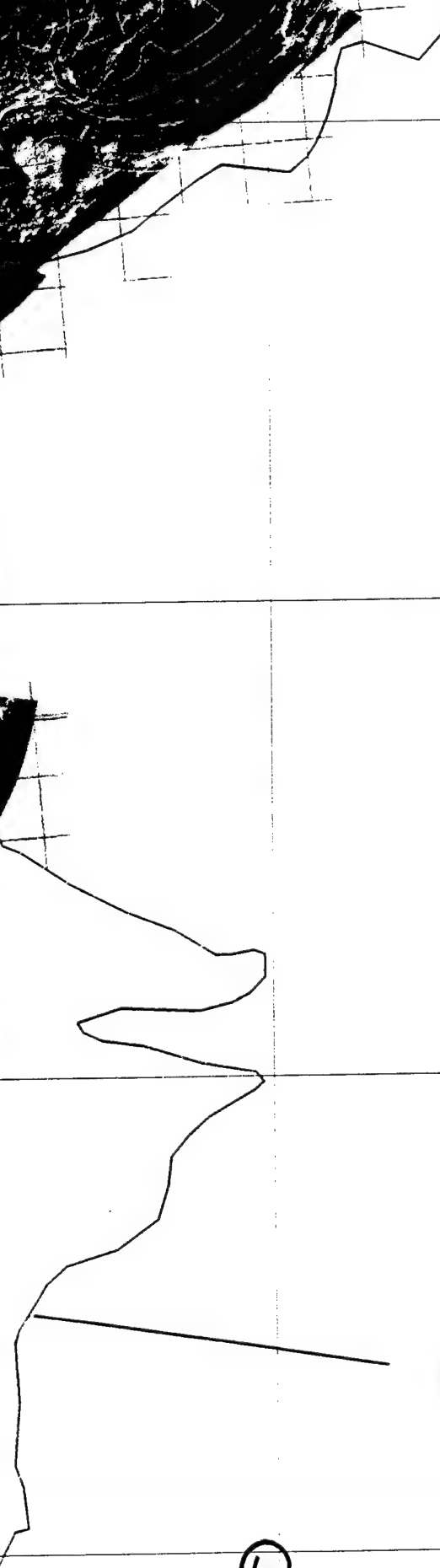
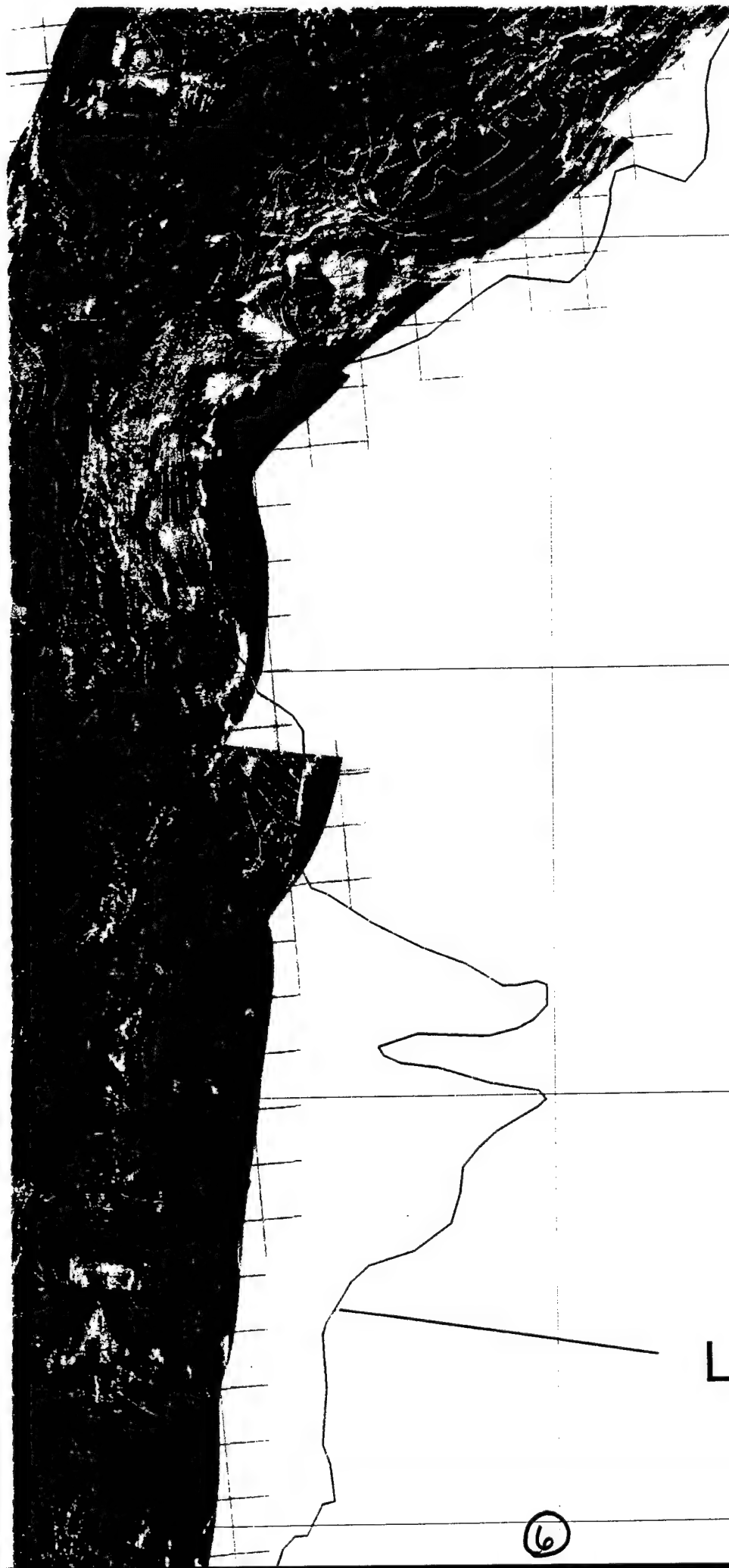


3673000

3672000

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L Lake

3671000

3670000

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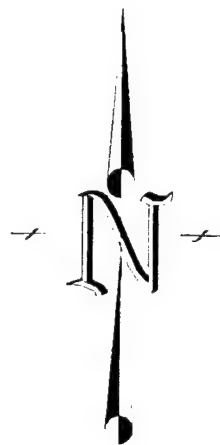




L Lake

0

10



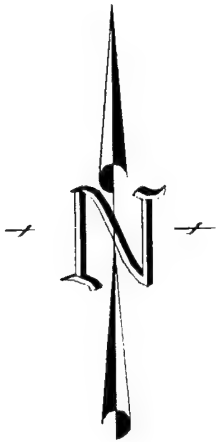
0 500 1000



meters

Depth Contour Interval = 5.0 feet

L Lake
Savannah River Site
South Carolina



1000

1500

meters

tour Interval = 5.0 feet

L Lake
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uth Carolina

3670000

3669000

440000

441000

(13)





Steel Creek

Dat
Coc

441000

442000

L Lake
Savannah River Site
South Carolina

Plate 2

Composite side scan sonar image
of the L Lake bottom surface

Date: 24 January 1997

Coordinate System: UTM NAD83 Zone 17

2000

443000

L Lake
nnah River Site
uth Carolina

Plate 2

side scan sonar image
Lake bottom surface

ary 1997

tem: UTM NAD83 Zone 17

443000